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OR21 Woleai OR21
Ifaluk

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MARSTON BATES *and*
DONALD P. ABBOTT

CORAL ISLAND

PORTRAIT OF AN ATOLL

[Title Page.]

Charles Scribner's Sons
NEW YORK

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Printed in the United States of America

Library of Congress Catalog Card Number 58-10527

W9348
170

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FOREWORD

IFALUK is a small dot on the map: a half a square mile of land can hardly show much detail on any scale used for Pacific distances. Further, it is spelled "Ifalik" on most maps, through some accident in the history of official spelling for place names. The people who live there call their island in a way that might be rendered "Eefahlook" in a sort of English phonetic spelling. We figure that the people who live there ought to have the final say about the name of their island: hence our divergence from the map makers.

Ifaluk is one of the Caroline Islands, which form part of Micronesia. It is some 700 miles north of New Guinea, some 400 miles south of Guam, and about 1200 miles east of the Philippines. It is a part of the Trust Territory of the Pacific Islands, administered by the government of the United States.

Ifaluk is an atoll: a roughly circular reef, built by corals and other lime-secreting organisms, marking off a quiet lagoon in the open ocean, the reef in places piled up to form islets emerging a few feet above the level of the sea. Mr. E. H. Bryan, Jr., of the Bishop Museum, in Honolulu, has compiled a list of the islands of the world that could be classed as "atolls." He finds 409: 136 in Polynesia, 92 in Micronesia, 66 in Melanesia, 15 in Indonesia, 5 northwest of Australia, 68 in the rest of the Indian Ocean, 26 in the Caribbean Sea, and only one in the Atlantic. Atoll formation, then, is primarily a phenomenon of the tropical Pacific: and the word "atoll" carries with it the connotations of warm sun, of white beaches backed by graceful palms, of friendly dark-skinned people, and of an idyllic way of life.

Ifaluk, for us, lived up to these connotations, and we found our life there a continuously rewarding experience: an experience which, in writing this book, we are trying to share.

We tested several ways of meeting the problem of joint authorship. We tried being "we" which had a nice regal sound and worked well enough when we agreed. But we have a great talent for disagreeing.

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114 128 despite the underlying similarity of our points of view. We tried writing in the third person—Marston did this or Don thought that—but wives, friends, editors, said this made pretty flat reading. Finally we decided to split the book: Marston Bates would write the account for the period he was on the atoll; then Donald Abbott would take over for the remaining two months. The reader can thus expect to do one mental somersault, where "I" changes from Bates to Abbott between Chapters IX and X: Bates and Ted Burrows sadly going off with the Trust Territory ship, leaving Abbott with new companions to finish the study.

It is, of course, extremely presumptuous of us—of Abbott and Bates—to write about a study that also involved five other people. But the problems of multiple authorship seem insurmountable in a non-technical book and we wanted, in any case, to write subjectively, to write about our own reactions and feelings as well as about the people and things that we observed. In a very real sense, however, all seven of us achieved a "team approach" in our study of the atoll so that, whether they like it or not, all members of the team must share some responsibility for both the observations and the thoughts that we have expressed here. And certainly there must be a total sharing of the credit for whatever good may have come out of the Ifaluk enterprise.

114 The Ifaluk team consisted of:

Donald P. Abbott, marine biologist, of the Hopkins Marine Station of Stanford University, on Ifaluk from June 22 to November 9, and leader of the expedition from September 12 to the end.

Theodore Arnow, geologist and hydrologist, of the U. S. Geological Survey, on Ifaluk June 22–24 and September 12–26.

Marston Bates, biologist, of the University of Michigan, on Ifaluk from June 22 to September 12.

Frederick M. Bayer, zoologist, of the U. S. National Museum, on Ifaluk from September 12 to November 9.

Edwin G. Burrows, anthropologist, of the University of Connecticut, on Ifaluk from June 22 to September 12, and leader during this time.

Robert R. Harry, ichthyologist, of the George Vanderbilt Foundation, on Ifaluk from September 12 to November 9.

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Joshua I. Tracey, geologist, of the U. S. Geological Survey, on Ifaluk from September 12 to 26.

We came curiously and quickly to have a feeling of "belonging" on Ifaluk, and we found ourselves much involved with the people of the island in everything that we did. Inevitably, however, we were more closely associated with some than with others, and it may be helpful to identify here the people with whom we were most concerned, whose names appear most frequently in our narrative:

Fagolier, the paramount chief of Ifaluk.

Maroligar, the number two chief, guardian of the Fan Nap, where we lived.

Toroman, the number three chief and the official divider of food.

Lavausrung, the number four chief; a lady.

Wolpaitik, the number five chief (and the heaviest man on the island).

Totogoeiti (Tom), Ted's interpreter, and top ranking navigator (palu) of the island.

Yaniseman (Yani), "schoolteacher" and constant companion and advisor.

Bakalimar (Bakal), initially assigned as our special helper in camp and field, working later with Harry's fishing gang.

Tachiwelimeng (Tachim), neighbor, friend, and later one of Harry's fishing crew.

Letaweriur, Yani's wife and a composer of dance chants.

Gavileisei, master craftsman and canoe builder.

Gauaisig, an old man, navigator and canoe builder.

Talimeira, houseboy of Burrows and Spiro in 1948, now one of the two local "doctors."

Arueligar, "high priest" or "medicine man."

The Ifaluk study was made under the auspices of the Pacific Science Board, with a grant from the Office of Naval Research. We are particularly indebted to the Director of the Pacific Science Board, Dr. Harold J. Coolidge, and to the secretary of the Washington office, Mrs. Lenore Smith, and the secretary in Honolulu, the late Ernestine Akers, for help of all sorts.

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JUNE TO SEPTEMBER 600

By Marston Bates

ERRATA

PAGE 8:

Line 34 at the bottom of the page: for "Robert R. Harry, ichthyologist . . ." read "Robert R. Rofen, ichthyologist . . ."

PAGE 9:

At the end of line 21: for "Harry's fishing gang" read "Rofen's fishing gang."

At the end of line 22: for "one of Harry's" read "one of Rofen's . . ."

PHOTOGRAPHS FACING PAGE 161:

In the caption for the lower right picture: for "Bob Harry was after fish . . ." read "Bob Rofen was after fish . . ."

In the caption for the lower left picture: for "PHOTO BY HARRY" read "PHOTO BY ROFEN."

SECOND PAGE OF PHOTOGRAPHS FOLLOWING PAGE 192:

In the caption for the picture of the nearly armless starfish: for "PHOTO BY HARRY" read "PHOTO BY ROFEN."

[PP. 12-24 are not Processed]

[P. 11]

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CHAPTER II

MOSTLY ABOUT PEOPLE

THURSDAY, the first day after the NETTLE left, was overcast, with occasional drizzling rains. This was probably just as well because it cut down on the temptation to wander; so we could concentrate on the organization of camp at the Fan Nap.

The Fan Nap—the "Men's House"—was a large structure, some forty feet long and twenty wide, with a high thatched roof that sloped steeply to within a couple of feet of the ground on the sides. The ends were closed with matting down to within four feet of the ground, which meant that any adult must crouch on entering or leaving. The main cross-beams inside were higher, but still low enough to be a constant hazard. I never did learn to use the proper inside-of-house crouch, and kept battering my head all summer. Ted and Don were more alert—or at least better at dodging.

The front part of the Fan Nap, nearest the lagoon, was used for sleeping quarters. Ted and Don had their cots at the sides, under the stringers—beams that had been hewn out of huge breadfruit logs. The logs looked precariously balanced on the heavy coral blocks that served as the corner posts of the house. Collapse of the house would have caused the occupants of the cots to be instantly crushed. The great beams, so close above, were thus at first something of a mental hazard. But they had withstood the gales of many years and were clearly solidly placed—and they were very convenient for hanging mosquito nets.

Tables and boxes were arranged in the central area to make working space. The equipment included carpenter's tools, and with these some

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of the wooden packing boxes were converted into sets of shelves. The cases of food were piled along the sides in the back part of the house, which became the kitchen area, cozily walled with cartons of sliced peaches and spam.

There was an altar in the back part of the Fan Nap that was a constant mental hazard because we did not want to offend the local people by desecrating this shrine with profane objects. The altar was a ramshackle affair, contrasting strongly with the usual Ifalukian workmanship, and this may have indicated that it was not taken very seriously; but we wanted to run no risk of giving offense. There was a large chest there, too, which we judged to be a sort of depository for the appurtenances of government. Among other things, the American flag was stored in the chest, to be hauled out and attached to a pole on the lagoon shore when a ship was sighted.

There was another sacred touch to the Fan Nap—a phallus attached to the main front center post and pointing out across the lagoon. The phallus, which pointed westward toward Woleai, the nearest neighboring atoll, commemorated an event of Ifaluk legend—or history. The story was one of violence and conquest and seemed curiously anomalous in the Ifalukian folklore, contrasting as it did with the present completely non-aggressive and peaceful character of the people. Ted thought that it might reflect memories of an actual conquest by the people of Ifaluk of earlier inhabitants of the neighboring atolls. Maur, the main character in the legend, was certainly the "culture hero" of the people of the island.

The phallus did not seem to be the object of any special veneration or cult—it was just there. Once, later in the summer, when we were trying to explain the money system of the United States, we were questioned about the portrait heads on the coins. Don explained Washington and Lincoln as long-dead "chiefs" thus commemorated.

Yani got the idea at once. "Ifaluk have picture of dead chief, too," he said, grinning, as he pointed toward the phallus of Maur on the Fan Nap.

The weather continued to interfere with the starting of field work. Friday it rained almost continuously all day—and of course the rain

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gauge wasn't unpacked and set up yet. A stiff wind came up in the afternoon and kept increasing in force. Late in the afternoon Tom came by with Maroligar, the number two chief. Tom pointed out across the lagoon to the west and said, "Maybe typhoon." Maroligar seemed somewhat worried as well. What the two wanted, apparently, was a weather prediction—from us newcomers to the tropical Pacific! It showed a touching and completely misplaced faith in the famous "American know-how." I was in charge of the meteorology department and I peered at the thermometer (79°F at 5:45 P.M.) and barometer (1005 millibars) but I was unable to draw any deductions from these helpful facts.

In the evening, quite a number of men gathered in back of the Fan Nap, clearly worried about the weather. Maroligar borrowed one of the big Navy battery flashlamps and learned how to turn it on and off. He wanted some sort of a light so that if the weather worsened during the night, he could round everyone up and lead them to some safer spot, perhaps the boulder ridge on the windward side of the island—the highest spot, some fifteen feet above sea level. The houses were mostly along the lagoon shore and Ted remembered that waves had reached to the Fan Nap on his previous stay, with a wind of considerably less than typhoon violence. Don and I read what there was on typhoons in the books we had brought along, and I tried to remember what I could about the characteristics of Caribbean hurricanes—but nothing helpful came out of this.

The wind settled down to a steady blow, and I comforted myself, going to sleep, by thinking that hurricanes struck suddenly, after a period of still, oppressive heat, so that this slow build-up of wind could hardly be dangerous—misinformation, but none-the-less comforting.

The next day, Saturday, started out cold, with a completely overcast sky. But the rain had let up, so we sallied forth to begin work. Our first project was to make a census of the people on the island. Ted had made a census on his 1948 visit and he wanted to get a record of the changes. For Don and me, the census would be an essential basis for our studies of "human ecology." Further, if we made the census our first item of business, it would give us an opportunity to meet all of the people on the island.

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Ted, of course, was in charge of the census operation. Tom acted as interpreter. Fagolier, the paramount chief, and Maroligar, the number two chief, went along, giving the highest possible official sanction to the procedure. The party also included a young man named Bakalimar—shortened to Bakal for ordinary purposes—who had been assigned by the chiefs to work with us, acting as general handyman and, most importantly, as dishwasher. (We did our own cooking; or, perhaps more accurately, our own can-opening.)

We were also accompanied by Tony. Tony was from the atoll of Ulithi, some 375 miles northwest of Ifaluk. He was a young man of perhaps eighteen, and had come to Ifaluk with his younger brother on the trade ship, some months before our arrival, to visit relatives. The Coast Guard had a station on Ulithi, where Tony had worked, and where he had learned fluent English. He was of no use as an interpreter in the census operation, however, because of his lack of familiarity with the Ifaluk household and clan arrangements, and because his youth made the questioning seem almost impertinent. The job required the maturity, dignity and local knowledge possessed by Tom. Tony's name, Antonio, was official, because Ulithi had been converted by a Roman Catholic Mission some years earlier—a process that included the adoption of Christian names.

The houses of Ifaluk were all on the two largest islets of the atoll, Falalap and Falarik, which were separated by a shallow and rather narrow pass. The Fan Nap, near the southern end of Falarik, was roughly in the center of the inhabited area. We started the census with the southernmost houses of Falalap, with the idea of working gradually northward until the count, household by household, was finished.

Three households—twenty-six people—were catalogued that first morning. Tom and Ted would lead the way into a household area, going inside if it was drizzling, or sitting on mats in the open during dry intervals. The available people of the household would gather about—and the available people included all of the men, all of the children except those who got scared at the strange activity and ran away, and all of the women except those under temporary quarantine in a menstrual hut.

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Menstruating women on Ifaluk, as in many cultures, were subject to a variety of taboos. There were four special houses on the atoll which served as menstrual huts for each of the four villages into which the households were grouped. A woman, at the onset of menstruation, retired to one of these, removed from the ordinary life of the community until her period was over.

The census-taking was not a rapid process. It took interminable palavering among Tom, the chiefs and the members of each household to get a list of names, with clan affiliations, marital status, and such-like lore dear to the anthropological heart. When the list was complete, Don supervised the weighing and taking of heights—the only physical measurements practical with the available equipment. The weights were taken on a set of ordinary bathroom scales that had been picked up in Guam. The measuring pole was less prosaic—made from a pole found in the Fan Nap and calibrated to the nearest quarter inch by marking with a ball-point pen. Maroligar officiated at the weighing and measuring; after he had watched the first two or three operations, he explained to each person where to put his feet on the scales, tried to persuade him to stand up straight for the measuring, and coaxed the shier women and children into cooperating.

In the meantime I would prowl around with the big Crown Graphic camera, snapping whatever caught my interest, and popping flash-bulbs to the delight of the children who had a new toy in the used bulbs.

There was plenty of time to look around while Ted was trying to get all of the names and relationships straight. We noticed that the houses were well built, with big posts stuck in the ground to which stringers and rafters were firmly lashed with stout coconut-fiber rope; the roofs were coconut thatch, and the walls were mats woven of coconut leaves. The houses were low, and people did not stand in them, but sat or sprawled on the floor, which was very clean and covered with plaited coconut mats. There were no windows as such, but each house had four to six doors, which could be closed with more coconut mats when desired. The interiors were dim—but there was no need for good reading light. There was little or no clutter on the floor, except for a few things propped against the walls. Most of the family posses-

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sions were put in bags or boxes of various sorts and slung by ropes from the rafters, the whole upper part of the house thus being a sort of floorless attic.

The citizens of Ifaluk cooperated nicely in the census operation, though they seemed rather amused at such strange antics. Those who had been weighed and measured loved to stand around and watch the rest as they passed through the routine. It was hard to get some of the people, especially the women, to stand up straight enough for a proper height measurement. They had, in many cases, what seemed to be a permanent crouch, perhaps resulting from the low doorways and interiors, perhaps the product of a sort of chronic deference, since the women of Ifaluk knew their place—always bowing respectfully in the presence of the male animal. (Ted suspected that this show was superficial and that the women, there as everywhere, knew their power and how to use it; one of the five chiefs, it turned out, was a woman.)

There were no ideas of modesty associated with the breasts; and the ladies didn't seem to be bothered by the fact that their skirts gaped rather badly near the belt-line behind. But they were very modest about legs from the knee up and were careful never to expose an inch of thigh. Their preoccupation with keeping their skirts close about their legs was clear enough as they stepped on the scales. Don, impressed by their modest maneuvers as he tried to read the dial on the scales, remarked that they would really be shocked by an American bathing suit.

The people seemed to take wonderful care of the children, the men holding babies and comforting the young as often as the women. Ted and his colleague, Spiro, in their 1948 study, found that the kids were never spanked, and rarely yelled at—though it was said that they sometimes doused them in the lagoon if they got too obstreperous. At the movies on the NETTLE Don noticed one man gently ladling sea water on a bawling baby. The baby stopped crying quickly—and he made a mental note to try this on his own daughter when he got back home.

The smallest infants were in cradles. These were square boxes with low sides, fastened by a bridle of cords from the corners, and suspended a few inches above the floor by a rope from the rafters. The babies were tucked in with some old clothes, and seemed contented enough.

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were tucked in with some old clothes, and seemed contented enough.

In general, the people had fine physiques, and seemed very healthy. There was one woman who looked like an albino with freckles, and another old woman had her nose and upper lip completely eroded away, probably from yaws. Yaws was once prevalent in all of these islands, but it yields quickly to penicillin injections and during the post-war period of American control, the Navy medical service instituted an effective campaign of yaws control.

After the first three households had been completed, the party waded back across the shallow pass to "home" at the Fan Nap for lunch. The weather kept us in for the rest of the day. The sky had been completely overcast all morning, with occasional drizzling rains, but without strong wind. In the afternoon the wind became steadily stronger. It started to tear coconut fronds, even green ones, from the trees, and the coconuts themselves were being blown off in large numbers. Don noticed one coconut fall at an angle of about thirty degrees from the vertical in the wind, and he figured that the wind had the force of eight or nine on the Beaufort scale—gale force.

About four o'clock Maroligar and some other men came around to the Fan Nap and lashed poles and boards across the open western end, where it faced the lagoon. A tent that had been unpacked but not set up was dragged over and lashed to the poles, nicely cutting out the wind and rain and making the interior fairly snug and comfortable. But the noise of the wind and waves outside kept increasing. A typewriter could not be heard four feet away, even in this snug interior. (Ted was typing up his notes from the morning, impervious to typhoons.)

We kept worried eyes on the barometer and on the wildly swaying palms. Men everywhere were out battening down their house walls with matting, and running great ropes from the gables, making them fast to the bases of nearby palms. Maroligar, hovering about the Fan Nap with obvious concern about the guests on the island, made it clear that if things got much worse we should move in to one of the houses farther from the shore.

Then suddenly, about five o'clock, the worryings and speculations were disrupted by a wave of excitement. An airplane had been

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sighted circling the atoll! Everyone rushed out to see. Don and I dashed back to the Fan Nap to get the walkie-talkies that had been provided for just this sort of a situation. The walkie-talkies had not been tested since being unpacked, but there was no time now. Don's seemed to transmit all right, but neither was very clear as a receiver, at least in the howling gale, so I ran back to the Fan Nap to tune the battery receiver-set there on the walkie-talkie wave length.

Don gave his position on the lagoon shore near the south end of the long island, and the plane must have heard because it turned and made a pass almost directly overhead. It was a weather observation plane from Guam. At the receiver set, with Ifaluk crowded around me, I could hear the whole conversation.

"Any damage there? Any damage there? Over."

"No damage, nobody hurt. Wind about Beaufort Nine. Is a typhoon coming? Over."

"Typhoon center already past now north of Ifaluk and moving northwest. Wind now at maximum velocity. We will report to Guam that you are all right . . ."

The plane disappeared into the mist over the north end of Falarik and out of radio range. Don lingered on the beach to make sure it would not make another circle, and I kept my ear at the radio for any further message, but only static came through. But we had heard enough. No more typhoon. Science said so. Western civilization had zoomed in from the sky to reassure us—and the relief was immense.

We relayed the information to the chiefs. Ifaluk was tremendously impressed with the whole business—the appearance of the plane, the conversation with the little boxes, and pick-up of the conversation on the Zenith radio in the Fan Nap. Goodness knows, we were impressed too.

Weeks later, when the trade ship of the Trust Territory Government stopped by Ifaluk, we found out that the storm had gained in force as it moved northwest and had hit the atoll of Ulithi squarely. Father William J. Walter, the missionary on Ulithi, described the damage in a letter to Don:

"A few hundred trees were uprooted and a few hundred more snapped in half. Paths were so strewn with debris that they were

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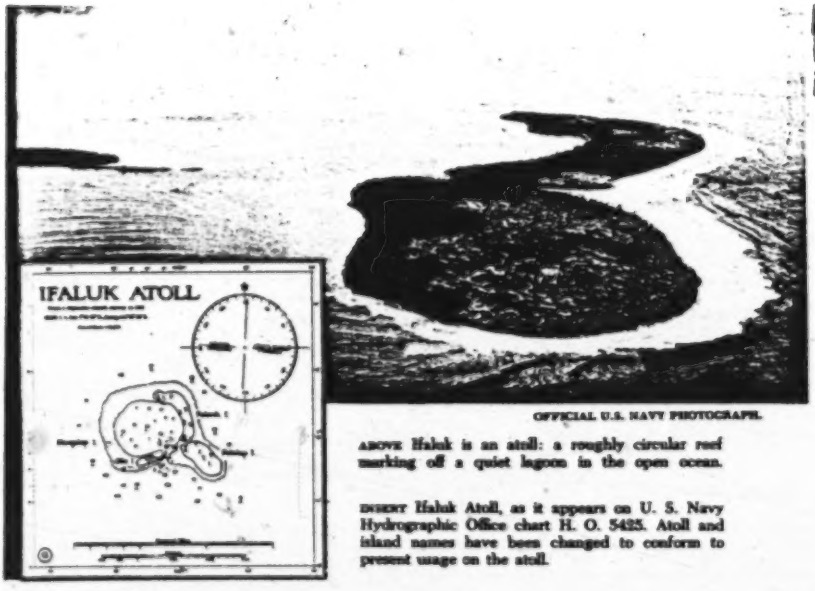

OFFICIAL U.S. NAVY PHOTOGRAPH.

ABOVE Ifaluk is an atoll: a roughly circular reef marking off a quiet lagoon in the open ocean.

INSET Ifaluk Atoll, as it appears on U. S. Navy Hydrographic Office chart H. O. 5425. Atoll and island names have been changed to conform to present usage on the atoll.

BELOW The chiefs turned the Fan Nap, the Men's House, over to us for our residence.

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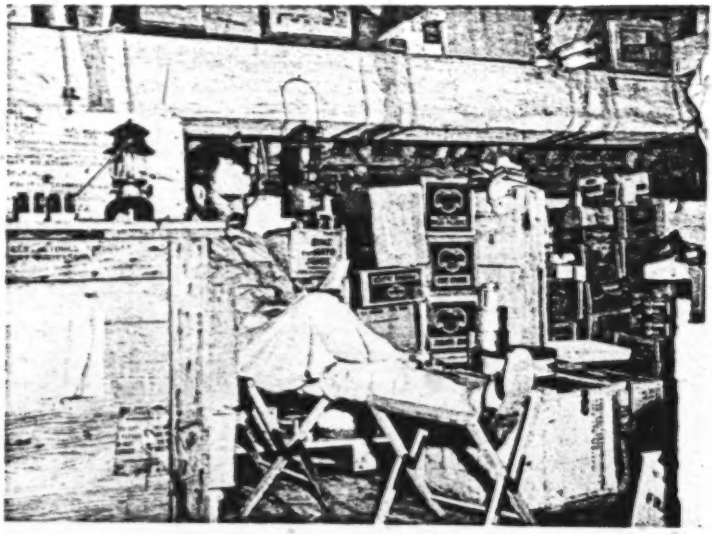

ABOVE Cases of food walled the kitchen area: Ted Burrows sometimes propped himself cozily there to read at night.

BELOW Don proposed a trade of English lessons for lessons in Ifalukian.

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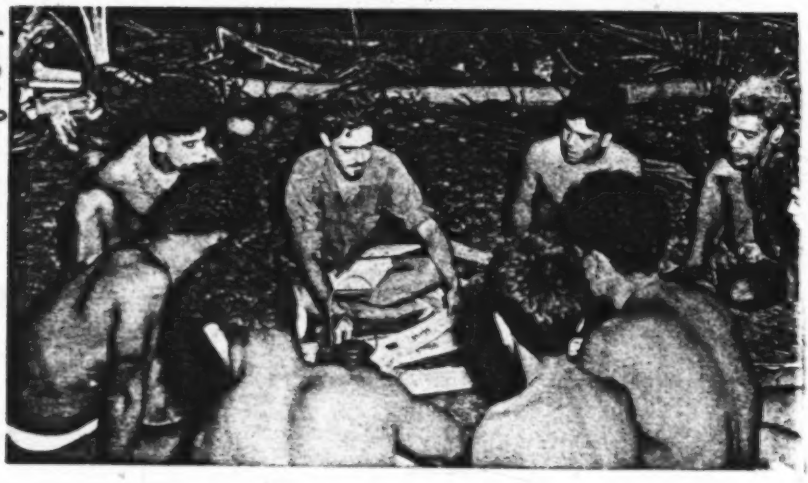

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obliterated completely. The ferocious wind scooped up the sea and hurled it over the island, ruining the fresh water in our rain catchments. The waves came up into the canoe houses and crumpled some of them. All canoes had previously been dragged inland into the villages and tied down between the houses. One of the women's club houses, which also served as maternity ward and hospital, began swaying under the impact of the storm. The women and children were removed to safety just before it disappeared in a spray of flying splinters. The waves piled up and crashed on the beach rolling water a hundred yards inland. The islands are only ten feet above sea level and the ocean threatened to inundate the land. All the coconuts and most of the fronds had been stripped from the trees. For nine months afterwards the people were on short rations and no copra could be produced."

The same trade ship brought news that another storm, about a month before, had hit Ulithi when a fleet of fishing canoes was out on the reef. Three canoes, with seven men, disappeared. The lost men included Tony's uncle, brother and nephew, and his niece lost her husband.

Ifaluk was too close to the equator to be often in the path of typhoons; it was in the area where these storms generally build up, gaining hurricane force as they move north. The island had not been struck by a major typhoon since 1907, but the storm of that year was a fearful one, and its mark was still on the island. From the lagoon, a few coconut palms stood out, much taller than the others; they were the survivors of the 1907 disaster. Great blocks of coral tossed up on the reef before Falalap were testimony enough to the unbelievable force of the sea.

The wind continued, but it could be ignored now that it held no threat of increased violence, and in the evening Don and I started seriously on our project of learning something about the language of Ifaluk. We had asked one of the young men, Yaniseman, to help with this, and he turned up with his good friend Tachiwelimeng.

This was the beginning of a close friendship and constant collaboration. Yaniseman was one of three young men from the island who had been sent to Yap for several months by the government of the Trust Territory to learn English and, on return, to serve as teachers for the island. The English that they could learn in this time was rudimentary,

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but they were anxious to learn more. Don proposed a sort of trade with Yani of English lessons for Ifaluk lessons. This developed presently into a regular session, every second or third night, with about a dozen of the young men of the island in attendance. I soon dropped out. The English-Ifalukian exchange thus became Don's enterprise: he had a special interest, since he would be staying on after Ted and I left.

By next morning (Sunday) the wind had pretty much died down, and the census operation was continued. About noon, a Navy ship was sighted off Falarik. The walkie-talkies were again unlimbered and contact was established. It turned out to be a destroyer escort, calling by the island to check typhoon damage. They sent in a rubber landing boat with a half a dozen men who spent about an hour wandering around the island trading cigarettes for shells, and then took off. It began to look as though Ifaluk, instead of being isolated in the remote Pacific, was a busy crossroads.

Monday, Tuesday, Wednesday, and finally the census was completed —or at least the first draft of the census. We made out a detailed list of all of the people, household by household, with a copy for each of us, and we kept making small changes all summer, finally making a complete recheck at the end of the summer to be sure we had everything straight. When I think of the trouble we had keeping track of 260 people, I get a new insight into the problem of census operations in a country like the United States. "Census" will never again be just a word.

The Ifalukians did not count years, and consequently did not know exactly how old they were. They did, however, have a series of words for age groups: saugau for infant, sari for child, tarimwan for young man, liveirik for a girl past puberty, and so forth. Old men and old women were called tufai and there were a number of old people on the island: twenty-eight men and thirty women in the tufai class, to be exact, so that about a third of the population was in the old age group. Some of these, including Tom, were adults at the time of the 1907 typhoon, so that they must have been in their sixties at the time of our visit: but they were healthy, vigorous and obviously enjoying life.

Ted asked each woman of childbearing age how many children she had had, how many were still living, and—for those that had died—

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whether they died in infancy (before they could walk) or later. The ninety-two women of childbearing age or older had had 255 children, of which 151 were still living. Of the 104 deaths, sixty were either stillbirths or infant deaths, which is a high infant mortality by modern Western standards, though probably lower than that of most of the crowded Oriental civilizations.

The menstrual history of every woman was public knowledge on Ifaluk because of the custom of retiring to the menstrual huts. Tufai for a woman, then, has the definite meaning that she has passed menopause, has completed her reproductive history. We got the reproductive history of twenty-eight of these elderly ladies. They had born a total of eighty children, or an average of 2.8 each. Eight of them had had no children; one of them had had ten; most had had two, three or four.

The Ifalukians, like most people who lack a written language or system of records, had amazing memories, and I think that our histories for these women are reasonably accurate. It is difficult to interpret them precisely, of course, because of our lack of data on movement to and away from the island, and the like. Clearly, however, the population is hardly maintaining itself. The Ifalukians loved children, seemed always to want children. I could not, however, get away from a suspicion that the low birth rate reflected some sort of deliberate contraceptive or control practice, beyond such conventional taboos as the prohibition of sexual intercourse during periods of fishing. The language problem, the delicacy of the subject and our reluctance to appear to be prying into personal matters, prevented us from getting any definite information.

The population question in the Pacific is a matter of general concern. All of the islands—Polynesian, Micronesian, Melanesian—showed a great decline in population through the 19th century. The islands had probably been almost free of contagious disease before the explorers, traders, whalers and other Westerners started roaming the Pacific, bringing smallpox, measles, venereal diseases, tuberculosis and the like along with them.

The consequences were devastating, and only in recent years have introduced medicine and sanitation started to counteract the effect of the introduced diseases. Until quite recently, I suspect that most cul-

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tural changes brought by the West—changes in clothing, in housing, in diet, in customs—have tended to increase the disease problem rather than to alleviate it. But that is a pet peeve of mine.

The population history of Ifaluk itself is not clear. Counts by anthropologists during the period of German control showed populations of 281 in 1903 and 208 in 1909, with an estimate of 300 for 1914. The drop between the first two counts may be a result of the typhoon of 1907—not only direct mortality, but also emigration to other islands as a consequence of food shortage.

The older Ifalukians thought that more people had lived on the island formerly; and from their stories I got to thinking that the population might at some time have reached as much as 500. This was based on accounts of times when even coconuts were carefully shared and nothing was wasted. Abandoned household sites in the village areas might be evidence of some population decline and there were stories of an epidemic, soon after the Japanese appeared, when as many as a dozen people died in a day. This, clearly, was smallpox; and the Japanese started vaccination, which has been maintained by the American authorities.

The island, in 1953, was not overpopulated. The land surface of the atoll was about a half a square mile, so the population of 260 people would represent a density of about 520 persons per square mile: a rather dense population, but we must remember that the people of Ifaluk had also the resources of their lagoon and of the surrounding seas. Ifaluk seemed to me to represent an economy of abundance, and this probably in part explains the idyllic living conditions that prevailed. With more people, with the same resources and the same cultural equipment, life might have been more difficult and unpleasant.

The Ifalukians certainly seemed not only happy, but healthy. It is difficult to make exact comparisons between the Ifalukians and other people because of our uncertainty about precise ages, so that one is likely to be averaging fifteen-year-olds with thirty-year-olds. In general, however, the men seemed to be somewhat smaller and lighter than the American average. The tallest man of the island, Sepemal, was a half inch under six feet. The heaviest (Wolpaitig, the number

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five chief) weighed 182 pounds with a height of 5′ 7½″. Wolpaitig came closest of any man on the island to having a paunch. 141 561

The women were considerably more under American averages for height or weight. They were generally only an inch or so over or under five feet, weighing not much over a hundred pounds. The heaviest, a matron named Ietili of the Garotrong household, weighed 150 pounds, and was 5′ 1½″ tall. Ted suspected that the small size and light weight of the women was a consequence of the fact that they carried out the regular toil of the island—the heavy gardening work of the taro swamps as well as the work around the houses. 141 562 [462]

The Ifalukians would be classed as Micronesians: but what that means is anybody's guess. "Micronesia" is a geographical term to cover the hundreds of "tiny islands" of the Marianas, the Carolines, the Marshalls and the Gilberts. The inhabitants of these island groups, the Micronesians, are hardly to be distinguished from the more famous Polynesians: a rapid survey of several anthropology texts shows that the two are more often classed together than not. The inhabitants of the various island groups of Micronesia are certainly more diverse, both culturally and physically, than the inhabitants of Polynesia: but the similarities among all of these light-skinned people of the Pacific are greater than their differences. And the problem of the origin and history of the Ifalukians, of the Caroline Islanders, of the Micronesians, cannot be separated from the much-discussed problem of the origin of the Polynesians. 101

I think part of the European fascination with Polynesia (which would apply equally to the people of the central Carolines) comes from the fact that these people look very much like ourselves. The features of the Ifalukians were very European, and I amused myself by noting resemblances in certain individuals, in features or apparent characters, to particular friends or acquaintances in the States. The people were not really dark-skinned: both Don and I acquired a skin color within a month that matched the Ifalukian average, as determined by frequent comparisons of arms placed side by side. A pair of naked legs walking by the Fan Nap, observed under the low over-hang of thatch, could not be identified as Ifalukian or American. The Ifalukians 142 [149]

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were surely as mixed up racially as the Europeans (none of us can afford to be stuffy about purity of race) but the mixture in the Ifalukians must have contained some of the same elements as the European mixture. But how did they get so far away?

Most anthropologists believe that the Pacific islanders moved out from southeast Asia, perhaps around the beginning of the Christian era, when the inhabitants of southeast Asia may have had a larger "Caucasian" component in their racial mixture than now. Despite his daring feat with the Kon-Tiki, few experts have much faith in Thor Heyerdahl's theory of American origin: he certainly proved that cross-Pacific contact is possible, but the evidence of language, culture and race points overwhelmingly to a Malayasian origin. One of the more probable migration routes for the Polynesians is from southeast Asia to the Philippines and through the Caroline islands to the central and south Pacific.

One gets the feeling, in this Polynesian-Micronesian area, of dealing with cultures far more complex than the technology would indicate: of dealing with the remnants of a high culture, of a "civilization." One feels that these same people, with the resources of a continent, could have built Angkor Vat or Copan: and they did produce some spectacular carving and building in places like Ponape and Easter Island. It is easy to understand the lure of the search for some "lost civilization" to account for these cultures; to understand the desire to create a mid-Pacific "continent of Mu" after the fashion of Atlantis. Maybe there is a general human tendency to explain the fascinating with the fabulous. Certainly the Pacific islanders are fascinating enough; but they have given us very few clear clues to either their origin or their history, and the few clues that we have are in part conflicting. Probably we shall never arrive at a clear and unequivocal reconstruction of their past.

But we were absorbed with the Present on Ifaluk. We had not yet acquired a proper Ifalukian shade of brown when we finally managed to finish our census of the people: but even with our strange color, we had already begun to feel at home, to feel "Micronesian" ourselves, a part of the island.

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CHAPTER III

MAPPING THE BOONDOCKS

THE IDEA was to study the human ecology of Ifaluk: the interrelations of man, his culture, and the environment. For man and his culture there was the reservoir of information accumulated by Burrows and Spiro during their 1948 residence on the island: studies which Ted planned to continue during his second visit. Don and I, with the enthusiasm of amateurs, wanted to help in this anthropological work. But there was also the environment to be studied—the land, the reef, the lagoon, the sea, the plants and animals. This "simple" situation—260 people living on half of a square mile of coral rock and sand—was incredibly complex.

When we had finished the counting, weighing and measuring of *Homo sapiens*, the next step seemed to be a start with the environment. The logical first move here was a map, a topographic survey of the situation.

The map problem was greatly simplified by the fact that a little previously a Navy reconnaissance plane had made a series of vertical and oblique aerial photographs of the whole atoll. The Ifalukians were fascinated by these photographs. They seemed to have no trouble at all in grasping the significance of either the vertical or oblique shots, and most people easily recognized the major landmarks, even locating their particular family dwellings. They knew the atoll thoroughly, and the aerial photographs gave them a chance to stand off and look at the whole thing at once, for the first time.

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126 Don and I spent one morning drawing a base map for the island of Falarik from a mosaic of the vertical air photographs. With this outline, the next problem was to fill in details of trails, households and vegetation. We thought we would start by mapping the principal trails.

Both of us were rank amateurs at sketch mapping. We had a Brompton compass lent by Ted Arnow and a triangular ruler marked with conventional scales, but no measuring tape more than six feet long and no plane table.

We first tried improvising a tape by tying knots at two-yard intervals in 100 yards of cod-line. When we had finished this tedious job, we discovered the darn thing stretched and tangled too easily to be of any use. I then dedicated myself to trying to learn to pace accurately, and soon managed a pace that fitted nicely when used on the base map with the 1:2500 scale of the triangular rule. This "Bates pace" was a purely arbitrary unit, but it worked well enough for our purpose. I learned to make nice adjustments in scrambling over coral [131] boulders and around breadfruit trees and through fern thickets so that I could come out with the proper count. In crossing the island, plotting the course on the outline map made from the air photos, we generally found an error of five or ten feet (it was about 900 feet across Falarik). This would probably have been disgraceful for an engineer but it pleased us immensely.

First we tried noting compass directions and number of paces for the quirks in the paths with the idea of plotting these on the map later. But this didn't work—too many mistakes. So I tried making a plane table by sinking a German camera adapter-screw into a board so that it could be fastened to an American camera tripod. The resulting contraption could not be called sturdy, but I was very proud of the improvisation.

We quickly worked out an effective system for dealing with trails. The mapping team consisted of Don, Bakal, Tony and me. Don handled the plane table, equipped with the triangular rule, the compass and a towel for switching away flies. Bakal toted things. Tony scouted ahead on the winding trails. I would keep an eye on Tony and when he seemed about to disappear on a trail, would call out to him to wait

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and then pace directly toward him. Don would sight on Tony (or me on arrival) to get the direction, and I would call back the paces so that Don could draw directly on the base map.

The main trail of Falarik, which I got in the habit of calling "the broad highway," or sometimes "el camino real," ran through the coconut grove parallel to the lagoon shore, generally twenty or thirty yards in from the water. It was about two yards wide, and neatly marked on each side by a row of moss-covered coral rocks. This broad highway ran between the Fan Nap and the lagoon, and passed directly in front of five of the big canoe houses that faced the lagoon along the Falarik shore. The sixth canoe house on Falarik was away from the trail on the point of land that jutted toward Falalap. There were also two canoe houses on Falalap, one facing the lagoon, and the other facing the pass between the two islands.

The canoe houses, clearly distinguishable on the aerial photographs, were convenient reference points in mapping. They served not only for the storage of canoes, nets, lines and other gear, but also as social centers for the men of the atoll. Groups gathered there to talk, or rest, or weave nets, or carry on the never-ending job of making twine or rope from sennit, coconut fiber. A big sea-going canoe was being built in the Falepenach canoe house, near the Fan Nap, during the summer of 1953. This provided me with a convenient and continuing subject for photography.

The broad highway ran for almost a mile along the lagoon shore of Falarik, extending considerably beyond the last habitation, toward the north end of the island, ending abruptly in the middle of nowhere. This northern tip of the island, beyond the end of the trail, was a wild tangle of vegetation, relatively little visited and little used. Except for this northwest tip, the whole of the lagoon margin of the island was a park-like coconut grove, kept clear of weeds or shrubs with almost no other kind of tree—only an occasional breadfruit tree near the household areas, and a few other things like the big *Barringtonia* by the Sabolap canoe house.

The entire course of the broad highway was thus through the open coconut grove. The habitations were mostly set at some distance back from the highway, near the "boondock line."

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We picked up that word "boondock" in Guam, and very useful it proved to be. It became an important part of the Abbott-Bates vocabulary, and may well have also infected the Ifalukian speech. In Guam, it was used to refer to the wild tangle of miscellaneous vegetation that had taken over so much of the island after the disruption of the war.

The boondocks on Ifaluk were the parts of the atoll that were not clearly something else—that is, not coconut grove, not taro swamp, not household area. The boondocks were not exactly wild, because all sorts of useful things grew there, including planted coconuts and breadfruit trees. They were not exactly cultivated either. Such areas could thus hardly be called "jungle" or "scrub"; and "forest" seemed rather inappropriate. "Boondock" was just the word; though we could perhaps better have used the Ifalukian equivalent, niwel.

The boundary between the coconut grove and the boondocks was sharply defined: weeds and shrubs were kept cleared out of the coconuts only up to this definite line—the boondock line. This again roughly paralleled the lagoon shore, fifty or sixty yards in. We plotted it on our map, later, when the trail mapping seemed fairly well in hand.

The habitations, deep in the coconut grove and near the boondock line, were grouped into "households." The census showed that there were twenty-six such households on the atoll, eleven on the island of Falalap, and fifteen on Falarik. The Falarik households were not scattered evenly along the highway and lagoon, but formed two clusters or villages, one called Ranau, at the south end of the island—the Fan Nap was in the middle of this—and the other called "Falarik" (the address would probably be "Falarik, Falarik") with a gap of about a quarter of a mile along the broad highway between the two.

The whole system of land ownership of the island was built around these households, each of which had a name. Later in the summer we tried to map the holdings of one household, Falepenach. These holdings included not only the immediate vicinity of the living quarters, but also several patches of boondock and coconut grove on Falarik, and patches in the big taro swamp on Falalap. The patch arrangement seemed to provide that each household would "own" its share of each of the different kinds of land.

The households varied greatly in size, from one which included

The households varied greatly in size, from one which included 43
only one old man and one old woman, to another (Falepenach) which 592
had twenty-six persons. The household system was matrilineal, and
when a man married he moved into the household to which his wife [591]
belonged. In the matter of what belonged to which household, a man
generally seemed to know much more about the household of his
mother than about the household of his wife, even though he had been
living in the latter for many years. There was considerable informal
movement among the households—people sometimes eating and sleep-
ing regularly in a household to which they didn't really "belong"—
which introduced a considerable element of confusion into the census
making. This informality plus clan relationships and other family ties
meant that labor was not strictly apportioned by household—the two
old people who officially represented the smallest household were as [888]
well looked after as old people would be in a household with numerous
members. Everyone really "belonged" to the whole island.

This matter of "belonging" had been on my mind ever since reading 858
that thought-provoking short novel by Carson McCullers, *Member of
the Wedding*. The "security" of the children of Ifaluk impressed us
from the very beginning. Every child was a member not only of a family
and a household, but of the whole island society. A child crying would
be comforted by the nearest adult. Curiously, the children, though
"secure", were far from obnoxious—in fact it would be difficult to
imagine a more delightful bunch of kids. The "sibling rivalry" that
seems to plague every American household was conspicuous by its
absence—the mannerly, non-aggressive character of Ifaluk society [181]
extended even to the five-year-olds.

The security of the children of Ifaluk is probably still further in- 597
creased by the widespread system of adoption. Ted found that over a
third of the children of the island had been "adopted" by couples who
were not their biological parents. When a couple for some reason wish
another child, they go to a pregnant woman (who must be of the clan
of either the adopting father or adopting mother) and ask if they may
adopt the child when it is born. The request, it is said, is never refused. 597
The adopting mother goes to the birth house with the real mother—all 844
children are born in a special house, which is taboo to men—and stays [343]
there while the baby is born. The biological mother keeps the baby

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until it is able to walk, but the adopting mother shares the care and affections from the beginning; and when the baby is able to walk, it moves officially into the household of the adopting parents.

The child thus really acquires an extra set of parents, since it continues all through life to have close association with its real parents as well as with its adopting parents. The child acquires extra sets of "brothers" and "sisters" as well. Don found some difficulty with the word "brother" in teaching English since, while the Ifalukians all knew who were blood brothers and who were not, the matter seemed of little importance to them.

Our friend Yani, for instance, and his wife, Letaweriur, had three children. His oldest had been adopted into his mother's household, Soumat, and his next into his father's household (since his father was a re-married widower with no children by the second wife). Only the youngest had he kept to himself. Yet Yani was with all of his children every day. In this case, Yani and his wife, although they officially belonged in her household, Falepenach, spent most of their time in the Soumat household, since it was less crowded. This sort of casualness gave us a great deal of trouble with that census.

But this is straying from the problem of trying to get the Falarik trails down on the base map. With the broad highway and the canoe houses as fixed points of reference, we started to map the principal trails across the island. Falarik was a crescent, following the curve of the circular atoll reef; it was a little over a mile long, with an average width of about 300 yards. There were a dozen or so trails across the island from the inhabited, lagoon side, to the outer, ocean side.

The first of these, taking off from the canoe house beside the Fan Nap, began as a "highway" rather than a "trail." Like the broad highway, it was a wide, straight path, marked on both sides by lines of moss-covered coral rocks. On the left side of this trail was the dense vegetation of Katelu, the sacred site of the ancient Men's House which was in use in the time of Maur, the island's "culture hero." This sacred spot was never entered by anyone except Maroligar, who was its official custodian. As a result, it was a wild tangle of natural vegetation. At one point on the path by Katelu was a large, fresh-water pool in which Fagolier, the paramount chief, sometimes bathed. On the right

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side of the trail there was an open grove of high breadfruit trees and other plantings of the Falivelu household.

This trail by Katelu we called the "schoolhouse trail"—because it led directly to the schoolhouse. The schoolhouse was a thatched shed built in a large clearing exactly half way across the island. It had been put up in accordance with instructions, either from the Navy or the Trust Territory, and contained a blackboard and a supply of essential equipment like boxing gloves and basket balls. But how would one go about introducing schooling on Ifaluk? Or should one? The answer to this latter, surely, is "yes" because willy-nilly the Ifalukians must learn to deal with the outer world in these days when that world has become a small neighborhood, and even Ifaluk cannot be protected by its remoteness. But the question of how to introduce this schooling is a complex one for which perhaps no one has a clear answer.

At any rate, the schoolhouse was not used for educational purposes during the period of our stay, but it did have uses. The clearing was a handy place to locate the rain gauge, and the schoolhouse itself, with its open sides, seemed a good place for the regular measurements of shade temperature and humidity. So the area became our meteorological station.

On this south end of Falarik the coconut grove of the lagoon shore extended right around the tip of the island to the ocean side, enveloping the schoolhouse yard. The trail was straight and formal, however, only as far as the school; beyond it became a winding footpath leading through the coconuts to the ocean beach.

Except for this southern end and the long stretch of lagoon shore, Falarik was covered with boondocks. Cocosuts grew all through these boondocks, and the principal forest tree was breadfruit. But there were a dozen other kinds of trees, and a thick underbrush of bushes and ferns—ferns everywhere. There were many swampy areas in the center of the island, but the land became slightly higher toward the ocean shore, the surface rough with coral boulders, culminating in a definite "boulder ridge" paralleling the ocean beach.

The beach on the ocean side was narrow, sloping rather steeply from this boulder ridge. Along most of the length of the island the beach, too, was covered with coral rocks, but there were also stretches of coral

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133 sand. Out from the beach there was a hundred yards or so of coral platform, largely exposed at low tide, then finally the edge of the reef itself against which the great rollers of the Pacific broke their force all the year around.

133 361 The other inhabited island, Falalap, was rather different: a large, rounded blob sticking out into the sea and spoiling the neat circle of the atoll. The habitations were all on the northwest end of the island, across the narrow pass from Falarik. Here, too, there was a maintained park-like area, corresponding to the lagoon-side coconut grove of Falarik: but on Falalap, coconuts and large breadfruit trees were interspersed, giving a different "feel" to the landscape.

133 137 262 The center of Falalap was largely a great swampy area carefully cultivated by the women of both islands. Two kinds of aroids (taro), *Colocasia* and *Cyrtosperma*, were grown there for their edible, starchy roots which, with breadfruit, formed the staple food of the atoll. We did not get around to exploring this region in any detail until late in the summer.

123 226 The mapping operation was kept up fairly steadily for several days, but there were always intermissions. On Friday afternoon—the second day of the mapping—Bakal and Yani had no difficulty in persuading us to knock off mapping and go spear fishing. We all piled into Bronson's skiff and rowed over to the shore of Ella, outside the pass into the lagoon. Don was rather snooty about this skiff, remarking that a Western rowboat looked like a garbage scow beside the trim and speedy Ifalukian canoes. But Yani and Bakal liked it—perhaps partly because it was foreign, but also because it was steady and because it [136] could hold several people easily. Don, maintaining his scorn, called it the BWUP after one of the more ungainly species of trigger-fish.

227 Yani and Bakal each had steel-pointed wooden spears, about fifteen feet long; and short, slender steel spears. The long spears were for poking; the short spears were shot from a sling. The sling looked like a strip of inner-tube; at one end was a string loop, tied on firmly; at the other end the rubber was tied into a loop just large enough to slip over the thumb. With the rubber loop over the right thumb, the string loop was pressed over a slight notch in the butt of the spear, and the spear then simply pulled back with the left hand and let go. It worked like a Hawaiian sling spear, with the hand replacing the hollow bamboo grip.

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Hawaiian sling spear, with the hand replacing the hollow bamboo grip.

Fish were not too plentiful and all were small. In a short time Bakal got four small surgeon fish of two species and a small bright-colored reef fish. None were over five inches long—which showed that small fish were not scorned as food.

Don had taken his Arbalete spear gun—a complicated and lethal weapon that had as yet hardly been tried. Yani borrowed it, and Don was greatly cheered to see him miss a couple of shots—Don had been feeling sheepish about his own misses. Presently there were loud shouts from Bakal and Yani. Yani, for fun, had shot a big moray eel with the Arbalete gun. (For fun because the Ifalukians do not eat moray eels. Ted explained this as a sort of pact: the Ifalukians did not eat morays or sharks, with the idea that the morays and sharks would reciprocate. The pact was occasionally violated by both the morays and the sharks.)

The spear was deep in the neck of the big eel, but the eel was still lively enough so that we did not dare try to bring it into the boat, and it was impossible to get it off the spear. So we rowed all the way home towing the speared moray behind the boat. After dragging the eel up on the beach, we managed to get the spear out. Don, Bakal and Yani then started out again, swimming, to try for more fish among the coral heads of the lagoon in front of the Fan Nap.

Don got a fine chance at a blue crevelley about a foot long, and hit him right through the middle. Just then, Yani swam up and pointed to a big moray eel completely out of the rocks and swimming rather feebly along the sandy bottom twelve feet below. The eel was partly on its side and seemed to be looking up at them. The thought flashed through Don's mind that some fool had thrown the speared moray back into the lagoon, and there it was, out for revenge.

They had just started to get themselves out of there when a big shark shot by—a huge, grey torpedo. It made a swift circle around Don, Yani and the eel. Yani shouted and thrashed the water with his hands and feet, at the same time making for the nearest coral head, yelling for Don to come. Don was close behind, still with the speared fish. They clambered onto the platform of coral, where they were standing in water about halfway up their thighs, Don holding

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123 the fish and spear high out of the water, trying to avoid attracting
226 the shark with blood. Once more the shark swept by, this time with a second shark just behind. Bakal swam out to the reef, in response to Yani's yells, carrying one of the big, long spears, while Toroman rowed out with the BWUP to pick them all up.

Yani had fished around the coral heads of the lagoon all of his life, and said he had never before seen sharks come in so close to shore. He had a theory that the noise of the spear gun had attracted them. It seemed more likely to Don that they had followed the nice trail of blood from the speared moray, dragged all of the way across the lagoon from outside the pass (where sharks were common) to the area off the Fan Nap. The speared moray was still lying on the coral sand, so the one they had seen behaving so queerly in the lagoon was another.

[260] The day ended with a fine fish dinner.

Ted turned on the radio that evening to listen to some music and
123 presently accumulated an audience of several Ifalukians who had happened to drift by. The next evening people started accumulating on the temple grass behind the Fan Nap shortly after dinner, and it soon became apparent that they wanted another radio concert. The news, apparently, had spread that this was possible. We were a little appalled at the prospect of having to give a radio concert every evening, none of us being much addicted to radios. We explained that the battery would get tired if it were worked too hard. Then Don happened to think of the phonograph.

The expedition had been equipped with a portable, wind-up phonograph. No one knew whose idea this was—perhaps a hang-over from some previous atoll expedition with a juke-box addict among its members. The accompanying records mostly looked like juke-box material, though of uncertain vintage, along with a few records of Hawaiian music.

We pulled down the box of records, which had been stored away high on a beam in the Fan Nap, and set up the phonograph on the temple grass lawn back of the camp. Tony, eagerly helping, said he knew all about phonographs—that experience with the Coast Guard Station on Ulithi again—so we turned the machine and records over

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to him. This arrangement worked well, and soon the concert was in full swing. I watched for a while from the side lines, caught by the contrast of the brown, naked bodies sprawled on the smooth lawn, listening to jazz records on a portable phonograph.

Presently another aspect of the contrast was brought to our attention —which served also as an illumination of the pocket problem. Nudity, or the seminudity of a loin-cloth, has one great drawback—there are no pockets. Of course, pockets don't necessarily follow from clothing, as any woman in the modern West well knows. But the absence of clothing does necessarily result in an absence of pockets. The men of Ifaluk and the women of the West, for their different reasons, thus share the problem of how to carry small useful objects of the sort that the Western male so conveniently stuffs in his pockets. The solution, in both cases, has been the purse. The men of Ifaluk always carried their purses with them—capacious, neatly woven affairs, which they put beside them when they sat down and tucked under their arms as they walked. What, we often wondered, were the contents of such a purse?

We got some insight, on this occasion, from Tony. After three or four records, he remarked to me that he thought the needle should be changed. I remembered we had come across needles in our unpacking, but for the life of me I couldn't remember where we had put them.

"Oh, that's all right," said Tony.

And he started to fish around in the depths of his purse. Presently he emerged with a small package and started to peel off the layers of wrappings of dried banana leaf, to disclose, finally, a paper of phonograph needles.

The answer to our question about the contents of the Ifalukian purse was clear—it might contain anything. Which I suppose would also be the answer in the case of the female purse of the West. Only Tony, carting his precious packet of needles from Ulithi to phonographless Ifaluk, seemed to have attained a state of preparedness hardly equalled by the White Knight. And yet, as Tony so triumphantly demonstrated, you never can tell!

I was, then, in no way surprised, a few days later, to have Tony pull

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a small tube of yellow oxide of mercury out of that same purse, and ask me what it was for. When I explained, he graciously gave the tube to Tom, who had granulated eye-lids.

On Sunday (it was the 5th of July by then) I was just contemplating a siesta after a hard morning of mapping, when the peace of the island was broken by cries of "sail-ho" picked up and relayed from the windward side of Falalap across to Falarik in no time at all. Bakal arrived almost as fast as the cries, all out of breath, with Tony soon after, to report that it was a big Navy ship with the number "59" on the prow. The busy crossroads again.

We got out the walkie-talkies, but all we could hear was the "testing," "testing" of one another. The ship wasn't talking. Maroligar dragged a brand new American flag out of the chest by the Fan Nap altar, passing over two tattered ones that had been lying on top, and with Don's help tried to get it on the flagpole, which had been considerably damaged by the typhoon. They finally achieved a sort of half-mast effect—to the considerable puzzlement of the ship's captain, it turned out later.

Ted decided not to let anything as routine as a Navy visit to Ifaluk interfere with his siesta. Don and I, less blasé, haunted the beach until the grey hulk of a destroyer emerged from behind Falalap to anchor off the pass. A small boat put off immediately. When it beached, it turned out to have several cases of equipment identifiable as belonging to Bob Rofen. The crew said there was more cargo aboard. Don hardly dared believe that this might include his missing equipment. He and I went back to the ship with the boat and there, sure enough, were Don's drums, so carefully and lovingly packed in Pacific Grove months before.

We went into the wardroom and had coffee with the officers and told them all about Ifaluk. We borrowed paper, envelopes and stamps to surprise our wives with letters. When Ted came aboard, bringing money, we bought as many cartons of cigarettes as we could at the ship's stores, but this was the only thing we could think of that might be useful. The Ifalukian consumption of cigarettes was enormous—every adult on the island had the nicotine habit—and we were the

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only source of supply, since no trade ship had visited the island for some months.

The captain went ashore on the final trip of the ship's launch. Most of the local population was assembled on the temple grass by the Fan Nap, all decked out with garlands in the hair and wreaths over the shoulders. I introduced the captain to Fagolier. It was a pleasure to watch the chief on such an occasion. He didn't need clothing for dignity: composed and calm, he always seemed pleased to meet the visitors, murmuring the correct phrases in Ifalukian, with no hint of the naked savage meeting civilization. Rather, the overdressed foreigners seemed awkward and out of place.

The captain photographed everyone, called in the sailors who had been wandering around, and took off. We all went down to the beach to see them go, but unhaunted by any desire to be going along. Don, of course, was terribly pleased to get his missing equipment: and I should have been pleased too, since I came to depend on that equipment for the rest of the summer.

That evening there was dancing. Ted thought at first that it was the children, but it turned out to be the young men, lined up by a bonfire, practicing for some big event that they planned presently. I popped flashbulbs at the dancers and Don and Ted watched, while the mosquitoes drained their blood away—another flaw in paradise. The scene was wild and lovely, the dark backdrop of the coconut palms fitfully lit up by the fire, the row of naked bodies trimmed with flowers and anklets and bracelets of coconut leaves, the inflected chanting, the stomping, clapping and rhythmic movement. Don learned pretty well to get the nice resonance that they produced by clapping the cupped right hand against the inside of the bent left arm.

Don got sore at me for popping flashbulbs—he said it spoiled the atmosphere, was an insult to the Ifalukians, and so forth. I suppose I felt sheepish about intruding with a camera myself—but I had thought I was doing my duty in getting a photographic record. Anyway, I took off with my camera in a huff and kept a residuum of photographic inhibition all of the rest of the summer. The camera is a curious thing that way—it takes gall or cheek or impertinence to get good pictures

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and the photographer is apt to be much resented. Yet people like to see the pictures. I never could see that the Ifalukians minded my photographic habits. They tended at first to stop work and pose when they saw me with the camera, but they quickly got the idea that I wanted them to continue working without paying any attention to me. The kids were particularly cooperative since (it was Ted's idea) I always had a pocket full of hard candies for distribution.

The people from Satawal left the next morning, Monday. I forgot to mention that when we arrived on Ifaluk, we found we had been preceded, a few days earlier, by a set of visitors from Satawal, another atoll about 150 miles to the east: three of the big ocean-going canoes, carrying thirty-seven men and boys, two women, two young girls and two babies. They were making a round of visits to the islands of the area in the traditional style, and during their stay on Ifaluk they were guests of the community.

Here in the Western Carolines the knowledge and practice of navigation with ocean-going canoes persists, while it is only a dim memory in most parts of the Pacific. Here too it will surely and perhaps promptly disappear, since it is, by any reckoning, a hazardous affair. The palus, the captain-navigators, of Ifaluk were all old men, and few of the young men seemed to be learning the art. The young men that we questioned had all travelled rather widely among neighboring atolls—but mostly in trade ships, or in the course of being moved about for labor by the Japanese during the war. Yani, for instance, who had travelled a great deal in ships, going to Yap to work on the airstrip, and to Palau for the start of his teacher education, had made only two canoe trips—both to nearby atolls—and he had no interest in further canoe travel.

The navigating methods of the Polynesians and Micronesians are not too well understood, and no European has ever accompanied them on an ocean voyage—or at least no European has ever written an account of such a voyage. Ted, in consequence, wanted very much to go with the Satawal flotilla which was heading next for Elato, some fifty miles to the east. Ted pointed out that while the trip might be hazardous, it was surely no more hazardous than driving on a parkway in the United States on Sunday, which millions of people did with no

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qualms. He asked Tom if he could not arrange a crew to take his wa terach, sea-going canoe, and go along. Tom said he could, but that he would have to get permission from the chiefs.

When the decision was made to sail that Monday morning, Ted had high hopes that he could go along. He made it seem very simple. I didn't know whether to volunteer to go along or not; I don't know whether he would have taken me anyway, but I was scared at the prospect of having to make some decision. But the decision was taken away from us.

We heard Maroligar blowing on his conch shell down by the beach, to call the chiefs together. Shortly after, the three navigators from Satawal came to pay us a farewell call, along with Fagolier, Maroligar and Tom. Tom announced to Ted the chiefly decision:

"Those chief 'e say 'no'. Suppose too much wind. Suppose typhoon 'e come. That canoe 'e go roll, roll, roll. Bimeby fall down in salt water. You *die*.

"Suppose you want go 'nother island, 'e got steamer. 'E got that Navy boat. You take 'im."

I felt a great sense of relief. Ted took it nobly, though surely his last chance for this great anthropological scoop was going with those canoes. He couldn't question the chiefly decision: but he could at least use the incident to show that chiefly government on Ifaluk was operating, and that the chiefs felt secure enough to deny a request backed by the enormous prestige of an anthropologist representing the occupying American power.

Ted decided he would at least get as thorough a description of the embarkation as he could. He put a case of corned beef in the rowboat and we set out for Falalap, Bakal and a friend at the oars and Don and me armed to the teeth with cameras. We got there just in time to see the last of the three big canoes rolled down into the water, and to follow the provisioning and stowing of the baggage—mostly big wooden chests that looked as though they might be of Japanese manufacture. Finally the passengers started to embark. The few women and children among these crawled into little thatched huts built out over the water on each canoe, on the opposite side from the outriggers. It certainly looked like cramped quarters.

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123 Ted dealt out his forty-eight cans of beef as a going-away present. [622] The chief palu acknowledged this with a short but elegant-sounding speech.

We rowed out to the pass to watch the canoes put up sail when they had passed out of the lagoon—a pretty sight. Three sturdy canoes [502] starting out confidently across the Pacific to hit another tiny atoll—perhaps no staggering distance away, but still something to find without instruments.

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CHAPTER IV

FISHING—AND BAKALIZING

TUESDAY morning was started by one of the chiefs blowing a series of resonant blasts, down by the lagoon shore, on a horn made from a large Triton shell. This was the signal for a general assembly. The chiefs had decided that the island needed cleaning up, and word had gone round that the start should be made today. The ground of the coconut grove along the lagoon had been littered with trash ever since the storm, particularly noticeable on the fine lawn of Japanese temple grass around the Fan Nap.

The cleaning was unhurried. The ground was swept with short brooms made from coconut leaves or from old coconut flower stalks with the branches held together by a binding of sennit cord. Much of the sweeping was done from a comfortable sitting or squatting position and the trash was gathered into neat piles to be burned later. The clean-up started at the south end of the island, the people gradually working north. At noon, when about half of the Rauau area was finished, Maroligar again sounded the trumpet and everyone knocked off for the day.

Don and I spent the morning trying to get things more organized around camp. There were Don's drums to be unpacked. He now had a typewriter and a small but very useful reference library and all sorts of goodies like specimen jars, thermometers, hydrometers for measuring salinity, and extra trousers which had been used for packing material. I promptly scrounged a pair of trousers. I had come to the

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island with two pairs of blue jeans and some T-shirts by way of clothes, and first off had cut the legs of both pairs of blue jeans to convert them into shorts. The trouble was that my legs kept getting scratched in the course of pacing through the underbrush. Then the cuts would get nasty infections. I was ready to abandon my principles and take to long trousers, at least for work in the boondocks.

These infections were another of the flaws in paradise. Staphylococcus would start growing happily in every little skin abrasion, turning it into a nasty sore. The infections yielded fairly readily to antibiotic ointments, but this involved daily sessions of "wound-licking" and an ever-present decoration of band-aids over the scratched skin surfaces. This bothered me particularly because it was a contradiction of my pet theories about the intrinsic healthfulness of the tropical climate.

The whole question of "tropical sores" is a puzzling one. Coral cuts are notoriously troublesome, but on Ifaluk it seemed to make no difference whether the cut was made by coral or by the saw-like margins of the pandanus leaves. It might have been special susceptibility by newcomers to local bacterial strains—but the local people often had similar sores. It might have been some nutritional lack—I had seen similar infections in South America clear up quickly with thiamine injections. Certainly, we, with our canned food, were not living on any ideal diet.

Whatever the cause, the sores were a continuing nuisance, and I was very glad to get Don's extra trousers, much as I hated the idea of trousers—an arctic garment not really adapted to a tropical climate.

While Don was stowing his newly arrived gear, I concentrated on trying to set up a drying cabinet for plant specimens, taking one of the big wooden cases and fixing it so that pressed plants could be stored inside over continuously burning kerosene lanterns, to provide a constant, gentle heat. We would need a record of the plants growing on the island, both wild and cultivated, and there was no use starting plant collections without provisions for drying them.

This drying cabinet was put up in the "laboratory tent," a tarp that was suspended between two coconut palms beside the Fan Nap. A big mosquito net was hung under the tarp and a box to serve as table put inside. We frequently worked there during the day, to get away from

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the flies, and during the evening, to get away from the mosquitoes. Ted stuck to the Fan Nap for writing up his notes—but carefully protected with long trousers tied around the ankles, and with coils of Japanese "punk" burning to exorcise the mosquitoes. He had great faith in that burning punk.

We decided to start the plant collecting that afternoon, since the drying cabinet was ready. It was quite an expedition—Yani, Tony, Bakal, Don and me. The idea was to try to collect not only the plants, but information about them. Tony, as a Ulithi man, didn't know the local plant lore, but he was a good interpreter. Yani's English was rapidly gaining in fluency, however, and he and Don, particularly, were able to understand one another almost from the beginning without outside help. Yani did know the local plants—their names and their uses—and Don would jot down this information while I fussed with the plant press itself. Bakal, as usual, was general handy man.

The clean-up was continued next morning and pretty well finished by noon, when everyone on Falarik gathered on the lawn outside the Fan Nap for a communal meal. "Feast" is probably too strong a word for the meals that invariably followed any community activity. The food was lavish enough, contributed by all of the participating households, but it did not differ markedly from the everyday diet.

In this instance, Ted decided that the occasion was important enough for him to contribute one of the cases of corned beef that he had brought along for just such purposes. The canned beef was a greatly appreciated delicacy, called "carawao," which would seem to stem from the Spanish word for water-buffalo, carabao. Several Ifalukian words reflected Spain's dominance in the Carolines in the 19th century —the word "cat" for instance, which hardly differed from the Spanish gato.

The opened case of beef was put before Maroligar, the number two chief, but the distribution of the cans was carried out by Toroman, the number three chief, who always seemed to take over when there was anything to be divided among the island households. He called out the names of the households, tossing the cans to representatives of each; some cans were set aside for Falalap (which was having its own clean-up), and there was a small, separate pile for the chiefs.

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262 The people had brought many pots of breadfruit, cooked in different
264 ways, and there was a large pile of drinking coconuts—also divided
527 by Toroman. The meal lasted about an hour. I spent most of the time prowling around with the cameras while Ted and Don were more directly participating, squatting with the chiefly group. Ted reported that he liked best breadfruit that had been cooked with coconut
[250] cream, resulting in a sort of mashed dough with the white, creamy, semi-sweet sauce.

123 That evening Don had his regular session of English and Ifaluk
648 language exchange under the gasoline lanterns in the back of the Fan Nap. After the lesson Yani and his friend Tachiwelimeng lingered. They asked about the war between the United States and Japan, and got to telling about their own experiences. Tachiwelimeng had been taken by the Japanese to Fais, where there was a radio station. When the first American ship appeared off the island the Japanese got very excited, radioed the news to Yap, and then disappeared into hiding. The bombardment that followed scared everybody on the island. Tachiwelimeng spoke no English, but he was a born clown and gave a hilariously vivid pantomime of how the noise of the first shell tumbled him, how he crept behind a coconut palm and crouched in a ball, how a shell hit the coconut tree about six feet overhead and blew it down. No one was hurt except one of the Japanese, who was hit in the arm, but not seriously.

648 Japanese ships later took their captive labor to Yap, to use in filling holes in the landing strip made by the regular American bombings. Tachiwelimeng gave another graphic pantomime of American planes dodging Japanese ack-ack, bombs exploding all over the place and the like. These people seemed to look back on this as a big sideshow, bearing no resentment for the local people killed by the American bombings of Yap, and little resentment against the Japanese for getting them involved there.

126 The days were beginning to go by with remarkable speed. Ted gravely crossed them off, one by one, on a big calendar posted in the Fan Nap, and there was a check on this in my notebook, where the meteorological observations were entered every morning, first thing

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after breakfast. All sorts of things went into that notebook (one of those waterproof engineer's books, carried in a case on the belt) and I had a chance to exercise my file-clerk instincts in keeping them straight. Numbers for plant notes had a square pencilled around them, so they caught the eye quickly. Pack and film numbers for photographs taken with the Crown Graphic had a circle around them; numbers for the Leica were double underlined; numbers for the Kodak Reflex were distinguished with a triangle.

The only marks for Thursday, July 9th, the day following the clean-up, were triangles, because the only notes were on photographs taken with the reflex. This was because the day was spent on a fishing expedition and I carried only the reflex. I never had liked that camera much, so I carried it whenever I thought there was danger of damage or loss—in this case, danger of salt-water damage.

Most of the men of Falarik were involved in this fishing expedition. Preparations started early in the morning. Great lengths of rope were hauled out of the canoe houses and wound spirally with strips of palm leaves, one after another, until the effect was that of a huge pile of monstrous green tinsel. The lengths of rope, as soon as they were prepared, were carried down to the lagoon shore and piled into the canoes.

By about ten o'clock everything was ready and the flotilla of canoes pushed off—a couple of dozen of them, the small one-man kind, and the medium-sized kind that carried four or five men. None of the big sea-voyaging canoes were launched. We went, with Bakal and Yani, in Bronson's rowboat, the BWUP, named for the ungainly trigger-fish. We felt awkward and sedate in this tub, but we were afraid of being a nuisance if we asked to go in one of the canoes. Anyway, Yani and Bakal were enamored of the BWUP, and it did make a steady base for observation and photography.

There was a row of about a mile across the still, bright lagoon. We took turns at rowing as a matter of principle, of sharing activities. But I am no athlete under any circumstances, and I was perhaps too obviously glad when I could stop the rowing and stretch out on the prow of the boat with head overside, staring into the mysterious sapphire

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123 depths. The lagoon deepened rapidly, but there were areas, even in
006 the center, where it was only thirty or forty feet deep, and the shadows
[133] of coral heads below could be made out.

Presently the water began to shoal again, as we approached the
502 reef. For a while the boat could be maneuvered through the sandy
226 channels among the coral heads but all hands had to walk across the reef itself while the boat was pulled through a narrow, shoal, "canoe pass" which, although only a few inches deep, was clear enough of coral to enable the canoes to be floated across the reef.

123 I was wearing alpargates, South American canvas sandals, excellent
133 for rain forest, but no good for coal reefs—this was the last day in the life of those sandals, and I had to use great care to make them last even for the walk across the reef. Yani and Bakal were managing nicely in their bare feet, which showed the incredible toughness that the human hide can reach, but even they were walking carefully.

It was something over a thousand feet across the reef. On the far side, on this still morning, there was only a gentle surf from waves averaging only a foot or so high. This was the lee side of the atoll, in terms of the trade winds, but at this season when the trades were not blowing and when the rain was often from the west, the breakers here could be very high, a pulsating line of white on the horizon from the view point of the Fan Nap.

The BWUP was pushed out beyond the breakers and boarded again.
[136] Here, outside the reef, was the shark zone, but none were seen all day. Yani said one of his relatives had been attacked by a shark in this region, but had saved himself by pulling off his loin-cloth and covering the eyes of the shark as he charged by.

226 The reef shelved off gradually and details of the bottom could be
133 made out clearly in twenty-five or thirty feet of water. The bottom was solidly encrusted with life—corals, coralline algae, sponges and the like—except for the narrow, smooth "surge channels," kept clear by the rush of water along the bottom returning from the surf. They were like ravines along a mountain front.

226 The canoes started playing out the coconut-bedecked rope, finally forming a huge semicircle out from the reef. The rope was weighed down with coral-block anchors and attached to each of the regularly-

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spaced canoes with a line. A large V-shaped seine was set in the middle of the semicircle, its bottom and sides over one of the ravines. When all was ready, groups of men on the reef at each end of the semicircle started hauling in on the rope, bringing the two ends continually closer together, so that eventually a big circle was formed with the off-shore edge just in back of the apex of the seine.

Everyone was in the water except the men hauling on the ends of the rope, the canoes being pulled along as the circle contracted. Everyone who owned them wore goggles, and with goggles the whole theory of the operation was clear. The frightening line of weaving fronds moved slowly along the bottom, driving hordes of fish of all colors, shapes and sizes before it. The swimmers followed along with the rope, and as the circle got smaller and smaller and the water more and more shallow, the circle of swimming men formed an additional barrier above the palm fronds. The fish, milling frantically inside the barrier, were finally driven into the seine, which was then closed, pulled up between two canoes, and the contents ladled into another canoe with a dip net. When the seine was up, many of the men went in with spears and dug out the fish hiding among the coral boulders.

This process was repeated three times during the day, the canoes and seine being moved each time to a new position along the reef. The total catch for the day was one of the middle-sized canoes about half full of fish. This was not regarded as a really good catch, but everyone seemed reasonably happy, and the fishing expedition, accompanied by a great deal of laughter and horseplay, was a fine combination of business and pleasure.

The BWUP with its passengers was sent in over the reef ahead of the rest, since it was so slow. The whole flotilla had moved around the reef toward the north end of Falarik during the course of the day, and the BWUP, on the way home, pulled in to this part of the island, where Yani and Bakal scouted for drinking coconuts. We all sat, relaxed, on the trunk of a fallen coconut for our drinks, and for the first cigarettes of the day. Because smoking before or during a fishing expedition is taboo.

The canoes came dashing home across the lagoon in fine style and by the time we got to the Fan Nap the canoe-load of fish had been

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pulled out and dumped, ready for distribution. This, as always, was the special function of Toroman. Five big red fish were put in a pile by themselves, for the chiefs, and there was another pile of special kinds of fish, mostly trigger-fish, set aside by custom for the old men. The remainder of the catch was sorted out roughly by size into piles of large, medium-sized and small fish. In the meanwhile, men representing each of the various households gathered around, smoking and chatting. All had freshly-woven coconut baskets for their share of the catch. These baskets, quickly made from the green palm frond, were the ordinary packaging material of the island.

In the first round, Toroman tossed to each man two of the larger and three of the middle-sized fish. Then each got ten to twenty fish from the middle-sized and small piles, the number depending on the size of the fish and the number of people in the household. Then every family got one more large fish.

Don and Yani weighed a few specimens of the different kinds and sizes of fish, and calculated that the total catch was about 630 pounds. About forty pounds of the smallest fish were thrown out as too small for use, or because they were of kinds considered inedible. The seine catch as distributed, amounted to about two pounds of fish per individual inhabitant.

Everyone had fish that evening, and very good it was. Several of the most prized kinds of fish were given to us. These were expertly fileted by Bakal, and equally expertly fried by Ted in bacon grease after being rolled in corn meal. Ted was a master at this. Jobs around the Fan Nap were generally pretty equally shared, but Don and I always tried to maneuver Ted into the fish frying job—not, for once, out of indolence, but because he really did have a touch. The Ifalukians generally roasted fresh fish like these whole over coals from small coconut-husk fires, and they were awfully good that way, too.

This kind of fishing, with giant rope-and-coconut-leaf tinsel dragged over the coral bottom of the outer reef, was called rop fishing. Whether Ifalukian rop had any connection with English rope was questionable. Ted thought the similarity coincidence, since the rop fishing must have been an ancient practice, long antedating any contact with English.

The Ifalukians, like the people of all of the old Micronesian and

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Polynesian cultures, had almost endless ways of catching fish. Individuals or small groups fished with spears or with hook and line. A method that appealed to me particularly was to attach the hook and line to a kite, which was sailed from a canoe in the lagoon: thus combining the pleasures of fishing with those of kite-flying (one of the numerous instances where I couldn't decide whether a particular operation should be called "work" or "play"). There were also a variety of ways of trapping fish, with traps ranging from the large, permanent stone weirs built along the lagoon shore, down through various types of wattle traps, to improvised affairs of plaited coconut leaf sometimes set by the women in the shallows—the only fishing operation of the women, aside from collecting crabs, shellfish and the like. Women, in fact, were subject to various sorts of taboos in relation to fishing, and sex was strictly suppressed during a prolonged fishing operation.

There were various ways of catching special fish, like tuna, bonito and flying fish, when these appeared, but I didn't get to see any of these operations. Later in the summer, however, Don and I did spend a very active day trying to get a complete photographic record of a lagoon seining operation—the kind of fishing called yating.

The Ifalukians had an immense supply of seines—great piles stored in each of the canoe houses. The accumulation of seines and of rope seemed a direct consequence of the almost compulsive male habit of making sennit twine. Whenever a group of men were sitting around gossiping, or helping us gather information, or quietly watching the horizon, some of them would pull handfuls of fluffy leached and pounded coconut fibers out of their purses, and start twisting them into twine. This process, like knitting with the women of the West, did not interfere with either conversation or thought; and since it went on constantly, the twine output was considerable. The sennit twine had a great many different uses, but much of it ended woven into seines.

In the case of the particular yating operation that we photographed, the morning started with groups of men shouldering lengths of seine and carrying them down from the canoe houses to load them into canoes beached on the lagoon shore. The canoes took off in orderly procession, each dumping its seine in turn and connecting with the next until there must have been nearly a mile of seine forming a great

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226 semicircle out from the shore and back again. Then men on shore started hauling in the seine, moving slowly along the beach to close the circle, a process that lasted from midmorning to midafternoon. Men in canoes were constantly guiding the movement of the seine and as the circle narrowed in shallow water, men with great dip nets stationed themselves along the seine at regular intervals to catch the fish that were frantically leaping out from the milling horde within. Finally, as with rop fishing, the imprisoned fish were driven into traps which were emptied into canoes, to be taken back to the Fan Nap [592] where Toroman, as always, supervised the division of the catch by households.

But the photographing of the yating fishing took place late in the summer. We had only been on the island a couple of weeks when we took part in the rop fishing expedition off the reef and we were full of wonderment about everything that went on about us.

535 571 The evening after the rop fishing there was dance practice again. It was going on every evening and I began to develop a theory that daily dancing was a basic element giving cohesiveness to the island's social structure. It seemed to combine the functions of amateur dramatics (participating in activities) and going to the movies (spectator entertainment). In this case the same people were at one time participants and at another time spectators. Even the kids formed their [857] dance groups, clapping and stomping and chanting in shrill, enthusiastic voices—usually in the early evening, before the adult sessions started. (My theory was all right, I think, except that dancing was an intermittent rather than a continuing activity, since there were long danceless periods between the proper ceremonial occasions.)

535 292 Even for these practice sessions, the people generally got pretty much dressed up, the men at least wearing garlands of flowers on their heads and coconut-leaf skirts over their loin-cloths. The men of Ifaluk, of course, tended to be the gaudier sex. This may be "natural" not only for man but for animals in general, Western civilization being out of step in this regard. Even in the West it hasn't been so long since the days of bright, embroidered waistcoats, and Hawaiian shirts seem to be spreading now in certain parts of the United States.

000 At any rate, Ted thought it was time for a present when Bakal

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ABOVE There was little clutter on the floor of the houses; most family possessions were slung from the rafters.

BELOW The people of Ifaluk cooperated nicely in the cocoa operation.

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[p. 64 (A)]

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LEFT Yaniseman, constant companion and adviser.

ASCAT Totogoeiti (Tom), navigator and interpreter.

BELOW Fagolier, the paramount chief; and Gavileiei, craftsman and canoe builder.

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[P. 64 (B)]

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ABOVE Sagolimar, who often worked with us.

LEFT Causisig, navigator and canoe builder.

BELOW Toroman, the number three chief and official divider of food.

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[P. 64(c)]

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above. The houseboats were not exactly wild; they were not exactly cultivated either.

BELOW We tried to collect botanical specimens of all of the kinds of plants on the atoll.

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[P. 64 (D)]

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At any rate, Ted thought it was time for a present when Bakal turned up at the Fan Nap ready for dancing after the day of fishing, with a garland of flowers in his hair, big lilies in the holes in his ear lobes, and a fresh green coconut skirt over his red loin-cloth. Ted had noticed the Ifalukian passion for ornament when he was there before, and this time came prepared with appropriate gifts, especially a good supply of ropes of the tinsel used for decorating Christmas trees. He got out a length of this tinsel for Bakal, who was delighted. Bakal ran his big, wooden comb through his hair several times to make it stand out stiffly (it stuck up in a great puff about three inches high anyway) and wound the tinsel around it in a double strand from the top of his head, at a rakish angle that brought it low over the right ear. A very flashy get-up for a young blade.

After two weeks on the island, we had become somewhat relaxed in this matter of male ornamentation. The people from the first would offer us maramars—garlands of flowers—for our hair, and we would accept them politely and appreciatively—and wear them sheepishly. But the sheepishness wore off rapidly. Presently I found myself expressing admiration for the effect of a wreath of velvety yellow four-o'-clocks on Don, and Don would notice the nice touch of bright red hibiscus on my black hair. Ted's beard was approaching magnificence, even at this early stage and made a fine accompaniment for flower garlands. After a while we reached the point of nailing up a mirror in the Fan Nap, so that we could arrange our garlands tastefully and appropriately before sallying forth in the morning. This process came to be known as "bakalizing" after one of its most devoted practitioners.

It was interesting to watch the process of disintegration of Western male prejudices in ourselves. The necklace given me by Tachi was one step in this process. Tachi, a boy perhaps twelve years old who lived near us, cut his foot very badly one day on a coconut shell. He came to me for help and I dressed the foot regularly every morning until the wounds had healed. Tachi, in gratitude for this doctoring, brought me a beautiful cowrie-shell necklace.

I put on the necklace doubtfully, expecting jeers from Ted and Don. But instead they both, with obvious envy, said how nice it looked! I wore it for a day and generously offered to lend it to Ted and then to Don. The loan was accepted, and for a long time I could only wear

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123 my necklace every third day, when it came my turn. Presently they were given necklaces, too, and then we could all be properly ornamented all the time!

123 177 Don kept on with the regular English lessons. He wrote a journal entry about one evening when Yani had brought a simple English reader from the school supplies and wanted to know the meanings of some of the words—believe, would, parade, party (that was easy), Halloween, conversation, as, think, exactly. Don felt he did nicely—all his teaching instincts came to the fore. He consulted me once or twice, but this obviously would lead only to an argument that would leave the English lesson suspended indefinitely—"exactly" was perfect for an Abbott-Bates argument. Its meaning could hardly be touched on without previous exploration of the nature of reality and the perceptions of the observer, and once this was started, "exactly" could never be reached again. So Yani got only the Abbott interpretations of meaning.

181 There seemed to be little trouble about the explanations, and this set Don to thinking about the nature of "savages." According to Ted, these people of Ifaluk had had the least contact with the West of any of the Pacific islanders—only the people of central New Guinea being comparable. Thus, by common Western standards, they would be classed as "savages"—in fact, as "naked savages." Yet, Don argued, these are really highly sophisticated people, so startlingly like Westerners that it was sometimes hard to remember that there were any differences at all. He was particularly impressed by their sense of humor, which [502] seemed to differ not at all from his own. They laughed at his jokes when they understood them, as he did at theirs. Humor that didn't cross the cultural barrier seemed to be associated either with the double meanings of language, or with cultural traits that were not shared. Don wrote these impressions in his journal—from which I am cribbing.

535 533 After the English session, we all went to watch dancing on Falalap. We took the BWUP and rowed over in the dark, settling down under the palms near a fire of dry coconut leaves. The women were sitting in a line, making slow movements of arms, torso and head to the pace of a slow, low-pitched song that mostly hung on one note, but oc-

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casionally rose or dropped over a scale of about three notes. There, in the light of a fire that flared to brightness and sank down almost to darkness as fuel was added or used up, with a row of bare-breasted women singing the pleasant but monotonous dirge-like song, with slow, almost caressingly sensual movements of the hands and arms, Don was overcome again with a feeling of unreality, of the cultural gulf that separated him from them.

But again he thought, this is trivial. The only real barrier is language, and that can be overcome. It was, in fact, already lessening. Just that day, he had been able to explain to a man who brought a wooden bowl to the Fan Nap that Ted was asleep, to tell the man to come back later in the evening, and to ask him whether he wanted tobacco or money for the bowl, and how much. It was a great triumph in communication.

The gulf between California and Ifaluk could be bridged.

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CHAPTER V

MOSTLY ABOUT FOOD

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562 Much time on Ifaluk was spent in sitting—men sitting around the canoe houses, women sitting around the cook houses. I had the impression that the men were more apt to just sit, and the women to sit and chatter; but this impression was probably a carry-over from preconceived ideas about my own culture. Certainly, in fact, the men in the canoe houses often carried on interminable conversations; but certainly also they were frequently silent and contemplative—or drowsy.

This fitted my temperament fine. Since childhood I have been an
643 inveterate sitter (and day dreamer). My most frequent companion in the sitting process on Ifaluk was Fagolier, the paramount chief. From the beginning he fascinated me with his poise and dignity, his character-lined face. I had a curious feeling of rapport sitting with him, sharing a mat or a coconut log, smoking, occasionally exchanging a grin, but feeling no real need of trying to say anything.

He had all of the qualities that should go with the paramount chieftainship—the assurance and humility of security; a calm, reliable decisiveness; an ever-present courtesy and thoughtfulness. I wondered often what he was really like, how much this picture of him was the product of my own imaginings, whether I saw him as he was, or whether I saw only the projection of my own concepts of a chief. Yet I gained confidence in my mental portrait because it always seemed to correspond with my observations. Then I would still wonder whether this was a tribute to Fagolier, or a tribute to the flexibility of my

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imagination. But his poise, his dignity, seemed to have a very real quality, completely independent of the trappings of position or pretence.

I remember the evening early in our stay when he stopped by the Fan Nap just as we were starting our dinner of spam, canned sweet potatoes and canned string beans. We asked him to join us, which he did with apparent pleasure, even making noises of appreciation over the string beans—the equivalent in my own household, over new food, of "how interesting." When we were finished he went off with his plate, cup and silver and washed it and started to try to wash a pot! It was like the thoughtful guest back home who insists on helping with the dishes; somehow, as real a gesture of courtesy as I have ever seen.

The next day, when I went to photograph progress on the canoe that was being built in the Falepenach canoe house, I found Fagolier working away with an adze on a plank, the efficient artisan. Usually he was right in the middle of any work in progress, carrying his full load.

He was always the thoughtful host. Everyone on the island was always a thoughtful host—but Fagolier, as chief, along with Maroligar, number two chief and proprietor of the particular spot where the Fan Nap stood, were especially attentive. I noted my impression in my diary one morning when Fagolier brought us fresh coconuts. He came with two handsome boys bearing the nuts, for all the world like two pages attending a prince. The pages placed the coconuts as directed by a wave of the hand, and during the ensuing period of polite silence, they sat quietly and respectfully in the background, so that the feeling of court was maintained.

I watched him directing a dance rehearsal one night. Don was involved with Yani's English and Ted with something else, and when Fagolier and Maroligar left the Fan Nap after their usual check on our comfort, they obviously expected me, at loose ends, to come along with them. When we got to the fire, they seemed to expect me to join the line of dancing men. So—away from the eyes of my fellow Westerners—I did.

Certainly I was very awkward and shortly I abandoned the attempt,

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123 but I was glad I tried because it gave me a direct experience with
535 Fagolier as dance director. He squatted by the fire and the line of
643 men formed opposite him against the dark backdrop of the coconut grove. To get some glimmering of what to do, I had to watch both Fagolier and the men in the line beside me, and I gradually got the feel of the situation. The dance involved a series of gestures with both hands, and of vocal sounds that varied from hums to shouts but that did not seem to form word patterns. Fagolier directed this with a remarkable economy of gesture, the indications of his hands being translated into full scale action by the men opposite. He was acting as leader and coordinator—again quietly, skillfully and economically.

121 These thoughts about Fagolier were precipitated the morning that Don started his food study of the Falepenach household. Don was resolved to be as exact about this as possible. It is very difficult to get precise figures on what people eat under any circumstances (think of the problem of measuring everything scraped off the plate into the garbage can, or of finding out whether Johnny got into the cookie jar this morning, and how many cookies he snitched). But, Don reasoned, the greater effort you made to be precise, the nearer you were likely to come to truth in your measurements. So, with the complete and invaluable assistance of Yani, he started out to measure everything eaten in Yani's household, Falepenach, for a month.

125 It developed at once that I was about as helpful as a sore thumb
[261] in this process. That first morning Don and Yani weighed all of the breadfruit and all of the coconuts brought in for the day's use. Then, to get a measure of the difference between crude and finished product, they waited around while the breadfruit and coconut were being prepared for cooking. Clearly I wasn't needed for either the weighing or waiting processes, so I drifted off to sit down by Fagolier and contemplate the horizon. Don, in the meanwhile, found (among other things) that twenty husked, ripe coconuts, weighing 27 lbs. 5 oz. produced 11 lbs. 13 oz. of copra ready for use in that day's cooking operations in Falepenach.

121 We had been talking about the problems of the food study from the
262 beginning. A careful study of what people ate, how much, how they got it, how it served them nutritionally, was clearly basic to any at-

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tempt at understanding man's relations with the world around him. With the census finished and the mapping well started, food study had next priority.

Each of us had somewhat different ideas about how to approach this difficult job. In the end, records were kept on four different households for a month each. Two of the studies were made by Ted and two by Don. I am not sure, looking back, why I stayed out of this, because food relations have long been one of my pet interests. I think it was chiefly a matter of economy of effort. Ted and Don had the matter well in hand and each had special advantages: Ted because of his familiarity with local customs and with the language, and Don because of his close association with the invaluable Yani. The daily record taking rapidly became routine, and a pattern formed very early by which each of us established his own special daily routines, thereby avoiding duplication of effort. When to collaborate and when to specialize is a nice problem in the team approach to scientific study. I think we handled the division of labor very well, though not always consciously.

Don and Ted have summarized the results of this food study. The details will be published in scientific papers, but perhaps I can give here a general summary.

The four households included a total of forty people, men, women and children: the average weight per person being 95 lbs. The average daily intake of staple food per person per day was: fresh breadfruit, 175 grams; ripe coconut meat, 130 grams; fish, 105 grams; taro, 70 grams; fermented breadfruit, 60 grams; fresh toddy (sap from coconut flower stalks), 415 cc.; milk from green coconuts, 75 cc.; green coconut meat, perhaps 35 grams.

Calculating food values for these materials is not easy, since most detailed nutritional studies have been made with northern foods. The foods of the tropical Pacific, however, have been studied in Hawaii, and there is a growing literature on nutrition in other parts of the Pacific. From this information, it appears that Ifaluk diet is inadequate in several respects, according to the usual dietary norms. The Ifalukians, however, gave every appearance of having an adequate diet—there were no obvious signs of their being undernourished. I have long

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146 114 come to view with suspicion these tables giving comparative nutritional values for different parts of the world. Truly, much of the world suffers from malnutrition as compared with the United States or Western Europe; but also, I think, our nutritionists have failed to give adequate attention to possibly varying needs. The food needs of man in Ifaluk and of man in New York are not necessarily the same.

121 262 One problem with diet studies is the difficulty of keeping track of snacks, of occasional foods; yet such occasional or incidental food may be very important in relation to some vitamin or mineral requirement. We were very conscious of this problem, and Ted and Don made every effort to keep track of incidental food as well as of staples. Yani was particularly helpful in this, because he tried to remember and report all of the incidental things that he and his friends ate as they wandered about during the day. On this basis, there was considerable variety in the Ifalukian food. At least thirty kinds of plants were eaten in one way or another (not counting "medicines"). Don got records 267 136 of eighty-eight different kinds of fish that were eaten, and guesses that there must be many more. For animals, there were also sea turtles, chickens and other birds, and occasionally pigs and dogs. Some seventeen kinds of molluscs were eaten, eight kinds of crustaceans, and a few other things like sea anemones and one kind of sea urchin.

137 [136] We arrived at the height of the breadfruit season. Breadfruit trees grew everywhere, producing far more fruit than could be used; and the fallen, rotting fruits were probably the chief breeding places of the flies that so plagued us. As the breadfruit harvest dropped later in the summer, so did the numbers of flies.

137 262 Breadfruit in its season (June through September, with a second, smaller crop in February and March) is the staple food, the chief source of starch, for the people of Ifaluk. It is a staple on most of the islands of the tropical Pacific—the "bread" of Polynesia and Micronesia.

137 245 The big, starchy fruits grow on a handsome tree, probably native to Malaya. It may well be among the most anciently cultivated of plants and the main food varieties are seedless, completely dependent on man for reproduction. It is propagated from shoots which spring up around the base of the trunk, and the colonizers of the Pacific—

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Polynesian and Micronesian—had to carry the precious young plants with them on their long canoe voyages to new islands.

The famous expedition of Captain Bligh with the BOUNTY had the purpose of bringing young breadfruit trees from Tahiti for establishment in the West Indies, where the planters thought it would be an ideal food for their African slaves. This first attempt at importing the tree was frustrated by the mutiny, but plants were successfully brought in on a subsequent voyage. Breadfruit, however, never became a staple in the West Indies. People do not adopt new foods easily (not even slaves), and where new staple foods have been adopted—as in the case of the potato in Ireland—it is generally because of overwhelming advantages. Breadfruit seems not to have demonstrated such advantages to any non-Pacific culture.

We went out one morning with Tom and a young man of his household to gather breadfruit. The man who was going to pick the fruit carried a large coil of rope and a long pole which had a short crosspiece firmly tied near one end. We followed him through a complex maze of boondock paths to a large breadfruit tree. He threw the coil of rope over the lowest branch (about twenty feet up) and pulled it out with his pole, so that the rope was hanging double from the branch.

With the aid of the rope he climbed easily up the trunk to this first branch, whence he could scramble to any part of the top of the tree. We watched him walk upright along one horizontal branch about thirty feet above the ground, using his long pole as a sort of balance after the fashion of acrobats. With the pole he was able to break off fruit easily in any part of the tree, allowing the fruit to fall to the ground. The bruising apparently did not matter, though the fruit to be used for food must be gathered before it is completely ripe, while the pulp is still white and mealy.

The fresh fruit is either baked or boiled, with many minor variations in ways of cooking. I didn't think much of it, no matter how cooked. It seemed no better or no worse than potatoes, palatable enough with meat gravy—but the Ifalukians didn't have meat gravy.

Breadfruit is the only food on Ifaluk that can be stored for any

251 Breadfruit is the only food on Ifaluk that can be stored for any length of time (they sometimes smoke fish, but not to keep it for more than a few months). To preserve the breadfruit, the skin is scraped off and the pulp cut into sections which are put into big, open-meshed rope baskets. These are carried to the lagoon, weighed down with coral blocks, and left to soak overnight. The baskets are then removed from the lagoon, covered with leaves, and left for still another night. The pulp can then be kneaded into a paste, which is wrapped in leaves and buried in the ground. The preserving process is quite comparable with that used for sauerkraut, and the stuff lasts for years. We didn't like the taste of this mar, but apparently it is nutritious enough. Considerable quantities are buried every year, insuring a food [731] supply in case of a disaster like a typhoon.

262 There are seven or eight named varieties of breadfruit, distinguished 137 by the size and appearance of the fruit, shape of the leaves, and the like. In the case of two of the varieties, the fruits have seeds, and in these the roasted seeds are used for food. They have a chestnut-like flavor and quality.

Almost as important as breadfruit were the two taros. This is perhaps doing violence to the word "taro" since it is using it to cover two similar but quite distinct kinds of aroids with edible tubers, one called by the botanists *Colocasia* and the other *Cyrtosperma*. The taro of Polynesia is *Colocasia*, but on Ifaluk both plants were about equally important. These again are anciently cultivated plants, vegetatively propagated, each with endless named varieties. The *Colocasia* on Ifaluk was called wot and the *Cyrtosperma*, pulach (the "ch" is also rendered as an "x" sort of a sound—we argued endlessly about how to spell Ifalukian words).

Both wot and pulach are aroids, that is, they belong to the botanical family that includes the "elephant-ear" plants, the Calla lilies and the Jack-in-the-Pulpit of North America. A third edible aroid, *Alocasia*, called file by the Ifalukians, was grown on the atoll, but it was considered definitely inferior to the other two and little used as food.

244 Wot and pulach were grown in low, swampy ground in the interior of the islets. The central part of Falalap was almost all swamp, and the main gardens were located there. These taro swamps occur all through the Pacific and it is difficult to know now to what extent they

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are "natural" and to what extent man-made, because they have been subject to careful cultivation for many generations. The care of the gardens is exclusively women's work and they become expert gardeners. The plants are set in neat rows in rectangular patches, each patch belonging to a particular household so that each household on the atoll has its share of the large Falalap gardens. Weeds grow luxuriously in the rich, mucky soil, and weeding is the main gardening chore. The weeds, I was interested to see, are always buried in the muck, so the practice of "green manuring" is an ancient one here. With young plants, coconut leaves were sometimes used as mulch, to cut down the growth of weeds.

I was greatly impressed, watching these women go about their work, at how little a Westerner would be able to tell them about gardening practices, at how well their methods were adapted to the plants and environment of their atoll. Perhaps one could put this another way, and wonder at how little modern "civilized" man with all his science has been able to improve on, or change, the gardening practices developed by peasant cultures through generations living close to the earth. We have made drastic changes in large-scale agriculture, but the gardener, throughout the world, shares a curiously large fund of common lore.

But I had intended to write here about food, not about agricultural methods. Wot and pulach were eaten to some extent, even during the breadfruit season, just as the preserved breadfruit (mar) was eaten to some extent at other times of the year, making some variation in the daily monotony of starch. There were many slightly different ways of cooking these tubers. We liked best a way of preparing wot (*Colocasia*) whereby it was mashed, cooked with coconut cream, moulded into little balls in a pot, and the whole covered with a thick paste of coconut meat. The effect was a little like that of mashed sweet potatoes served with heavy whipped cream.

Coconut, of course, permeated every aspect of Ifalukian cooking—the milk from green nuts and ripe nuts, the flesh from green nuts and ripe nuts, the sap from the cut flower stalks (here called hachi, perhaps best called "toddy" in English). The coconut was more often used as a supplement in cooking breadfruit or taro, as a seasoning, or the

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milk or toddy as a liquid for cooking, than as a food in itself. But the green nuts everywhere provided a handy source of drink; and the translucent, jelly-like flesh of these green nuts, eaten after the milk has been drunk, was surely a highly nutritious, though perhaps minor, food.

When a coconut sprouts, the hollow of the nut becomes filled with the white spongy tissue of a special absorbing organ (an extension of the cotyledon). This spongy tissue has a pleasant, sweetish taste and the Ifalukians were very fond of it. It often seemed to me that the juice of green coconuts filled the role on Ifaluk of soft drinks or mid-morning coffee in our culture; and that the spongy tissue of these sprouted nuts corresponded to candy bars, a tasty snack always readily available. The Ifalukian product, in both cases, would seem to be more "healthful" than its Western counterpart.

Toddy, or hachi, the sap that oozed from the cut flower stalks of coconuts, was a very important element in the Ifalukian dietary. Many palms have a strong flow of sap into the large, rapidly-growing flower stalks, and people in several parts of the world have learned to use this—most notoriously in a fermented form. The flow of sap was better in some coconut palms than in others, and on Ifaluk the particularly good palms were marked off for this special purpose of supplying toddy. Every morning and every evening all of the young men of the island were off on their rounds of collection, each with his special beat.

The toddy palms all had notches cut in the trunks to facilitate climbing. A man would go to each of his palms in succession, climb up to the crown, pour the sap accumulated in a coconut shell into the bottle he carried, shear off a thin slice from the end of the cut flower stalk to stimulate sap flow, replace the coconut shell to catch the drip, and go on to the next palm. Several quarts of the fresh sap were thus brought into every household each morning and evening.

The rich, sweetish sap was reserved primarily for the women and children—its place in the diet of Ifaluk seemed to correspond to milk in the diet of the West, and the regularity of the young men with their toddy chores reminded me strongly of the regularity of the milking chore in the rural West. It was, in fact, the only regularity we were

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able to observe on Ifaluk. Meal hours had no fixed time. There was generally only one large meal in a day, but the time of day at which this was eaten seemed to vary with the whim or convenience of each particular household. The time of toddy-collecting, however, was as unvarying as the sunrise and sunset with which it coincided; and every young man dropped whatever else he was doing at those times to carry out his chore.

Officially, the toddy was always used fresh on Ifaluk. As Ted had found during his first visit to the island, the chiefs had decreed prohibition. They had observed the effect of alcohol on the peoples of some of the neighboring and more Westernized atolls, where the people had easily learned how to distill the fermented toddy into really potent stuff, and they had decided that for the peace and security of the island it would be best if even fermentation were not allowed.

But toddy ferments easily and quickly. We noticed at some of the dance rehearsals an occasional older man with a definitely unsteady gait or a tendency to be too loud or too obvious, and concluded that he had allowed some toddy to follow its natural course by leaving it sit for a day. We had no direct evidence of the violation of prohibition, however, until toward the end of the summer when Tom offered us a sip from his bottle.

The stuff tasted very good to me, though perhaps I am no judge since my taste in alcohol is catholic. It had a pleasant, cider-like tang with, I should judge, about the strength of good beer.

Breadfruit, the two kinds of taro, and coconut, then, were the basic vegetables of the atoll. There were also a number of minor crops—especially papayas and several kinds of bananas and plantains. The papayas were fair, the bananas excellent, but they seemed to be little used by the people. We were often brought cooked green papayas, which have a squash-like texture and taste, and this seemed to be the way they were most commonly used. We were kept constantly supplied with bananas—we always had a bunch or two hanging to ripen in the Fan Nap—but the people seemed to consider them to be children's food. They appeared to prize the banana plants more for the fiber they got from the stem than for the fruit.

Fish formed the basic animal food, but the people also had pigs

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Fish formed the basic animal food, but the people also had pigs
262 and chickens. We included domestic animals in our census of the
731 island, and came out with a total of 280 people, five dogs, nineteen cats,
[161] thirty-three pigs and fifty chickens. The pig total included animals of all sizes, so pork was not a common article of diet. Only two pigs were slaughtered during the summer, not, as far as we could see, in celebra-
[052] tion of any special occasion. The pork was simply boiled instead of being roasted in the traditional Polynesian style.

The fifty chickens were regarded also as a source of occasional meat. We found no instance of the eggs being used for food by the local people. Soon after we set up camp, a young man came around with some eggs which he offered to trade with us for cigarettes. We made a deal and started looking forward to next morning's breakfast. We decided to boil the eggs. It turned out that I liked mine at the three minute stage, the others in a somewhat harder condition. So I dipped my eggs out of the pot at the proper time and started to break one open only to disclose, not the expected runny yolk, but a fully developed chick, ready to hatch! A hasty examination showed all of the eggs to be in the same stage.

I don't know whether this was purposeful or accidental. I wondered whether the people knew of the Phillipine delicacy, balut, and assumed that all outsiders like their eggs in a late stage of development. At any
[937] rate, we got the idea across that we would like fresh eggs, and through the summer we were brought a fairly steady supply, always in return for cigarettes. After that first experience, we always carefully candled the eggs, occasionally finding one that seemed to be more chicken than egg, but this apparently by accident.

262 Although the Ifalukians did not eat chicken eggs, they were very fond of turtle eggs, and these at times turned up in good supply. The albumin of a turtle egg (at least of the eggs of the sea turtles of Ifaluk) does not coagulate on cooking. Don had a strong aversion to uncoagulated egg albumin, and I remember watching his efforts to make a turtle egg in a frying pan turn into something that might look like a respectable egg—yolk surrounded by the conventional white stuff to which we are accustomed. But the turtle egg still looked raw, no matter how long he fried it.

000 I, of course, made the proper jeers about this culture-bound food

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I, of course, made the proper jeers about this culture-bound food aversion of his, which would cut him off from a rich local source of protein. Out of sheer bravado one morning I sucked turtle egg after turtle egg. I got nowhere in my effort to make Don feel foolish (he had great reserves of faith in his own prejudices) but I did make myself very sick. I suspect that the relation between the cramps and the turtle eggs was sheer coincidence; but for the rest of the summer I couldn't face a turtle egg with any more equanimity than Don could, and the eggs that were brought us were disposed of surreptitiously.

The Ifalukians were always bringing us food, more food than we could possibly have eaten with the best will in the world. We protested, but there was no stopping them. Much of it we didn't like—we were a very culture-bound trio, really, perfectly happy with our spam and canned spinach. We felt we couldn't run the risk of hurting the feelings of our hosts by admitting that we didn't much like their breadfruit and boiled pulax, so we would accept the food, eat what we could, and stealthily dispose of the rest in the lagoon at night.

We were always really grateful for gifts of fish, however, and my memories of the summer include the tastiest fish orgies of my whole life. We would turn the fish over to Bakal for fileting and Ted was really a master at rolling the filets in corn meal and frying them in bacon grease as I remarked before, and the Ifalukian fish, fresh out of the transparent waters of the lagoon, were just the right material with which to work.

But while we kept our respect for Ted and the Western method of frying things, we also fell in easily with the Ifalukian method of cooking fish. The commonest and perhaps the tastiest method was simply to roast the fish whole in coals of burned coconut husks. The hardened and carbonized skin could be easily peeled off, to reveal the tasty flesh. I have particularly fond memories of roasted parrot fish. Somewhere, from my Florida childhood, I had got the idea that parrot fish were inedible. I still don't know about the West Indian varieties, but I can certify that the parrot fish of Ifaluk were very edible indeed.

Don and I lost weight during the summer though hardly needing to. I had a gaunt and hungry look, twenty pounds below my normal weight, when I left after three months. I suspect this was our own fault, due to our careless habits of living off casually opened tins of

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this or that. We might have done better if we had tried to adapt directly to the Ifalukian diet, because certainly the Ifalukians looked healthy and husky enough. Perhaps we couldn't have adapted to their varieties of starch in the time available, since changing food habits involves somewhat more than merely changing prejudices, and changing prejudices is not always easy, particularly when there are three people to interact on one another.

Clearly our own food behavior was not adapted to the atoll conditions, though I am not sure exactly what we did wrong. I always tend to have a skinny, underfed look, in the tropics. It bothers me to have people tell me how well I look after a winter in the north; and how bad I look after a period of tropical residence, because my feelings are exactly the opposite of my appearance. We weighed ourselves periodically on the bathroom scales that we had brought along for weighing the inhabitants of Ifaluk, and I worried a little as I watched the steady drop. But the worry wasn't enough to spoil the pleasure of living in the sun or lazily floating in the lagoon, or enough to jar me into any dietary experiments. We went on opening our cans while we weighed the food at Falepenach and Soumat, dietary intruders but having a wonderful time.

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CHAPTER VI

FISH WATCHING

DANCE rehearsals continued almost every night, and it was clear that we were expected to attend despite the interference with both work and sleep. Somehow I didn't understand until some time later that this dance business was largely a response to a request of Ted's. He had particularly wanted, during his first stay on the island, to see some of the important traditional dances, the ur dances, but no such ceremonies had taken place. Before we started for Ifaluk this time, Ted had written to the anthropologist of the Trust Territory Government, expressing the hope that we would be there in the proper season for the dances. The anthropologist had passed the word on to the chiefs by way of the trade ship which called at the island about a month before we arrived.

It turned out that we were too late. The proper time for the ur dances is at the close of the period of ceremonial fishing by torchlight for flying fish. But the Ifalukians, wishing to please Ted, rearranged their ceremonial schedule. They couldn't bring the flying fish out of season, but they could perform the dances.

The dances were really, as Ted explained, a religious ceremonial designed to please the gods. But, as Ted further noted, this did not mean that the content had to take some special religious form: the kindly gods of Ifaluk enjoyed whatever interested the people.

Religion seemed in general very unobtrusive on Ifaluk. There were sacred spots like the altar in the back of the Fan Nap (completely unused during our stay); there was the wild tangle of vegetation in sacred

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Katelu where Maur's spirit lingered; there was a tiny, thatched "god house" in the Valul household area on Falalap; and an immaculate, sanded circular altar as part of the Weluar household area. We called Arueligar the "high priest" because he had the highest ecclesiastical authority on the island, officiating at the few religious ceremonies we observed. Husky, handsome Truesai was his designated successor.

Ted, both in 1948 and in 1953, devoted much time to collecting notes on religious beliefs. He felt that these beliefs were steadily weakening, that he could notice a difference in this respect between his 1948 and 1953 visits. The gods, however, were still with us in 1953; alus, spirits, who haunted certain places, governed various natural events, and interfered for good or evil in the affairs of men. Ted collected a list of nine high gods, and of dozens of lesser spirits. He found, for instance, twenty-seven different alus concerned with different matters in connection with navigation and canoe building—though these, to be sure, are basic activities, much subject to divine guidance in any maritime culture.

My impression, however, based mostly on Ted's writings, notes and comments, is that the Ifalukians were far from having an organized theology. The accounts of divine affairs that Ted got from Arueligar and from the chiefs did not always agree; and most people apparently gave little thought to such matters, leaving them to the chiefs and the specialists. The alus were present, all right, but accepted as a part of the natural order of things: the spirits that every folk find in the world around them.

The vast majority of the alus were spirits of the dead. No one died while I was on Ifaluk, but Ted and Mel Spiro observed four deaths during their 1948 stay. They have described these in their book on Ifaluk: the intense preoccupation on the part of friends and relatives with trying to save a seriously ill person by every natural or supernatural means, the nightly wailing chants, the great seriousness surrounding possible death, and the abrupt relaxation of this seriousness once death has occurred, once the alus has left the body. They ascribe this attitude to the firm belief in the continuity of the soul.

The body of the dead, however, is given ceremonial treatment: the face is painted red, a new loin-cloth or skirt is put on, and then the

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corpse is wrapped in seemingly endless coils of rope, weighted with stones, and taken out to sea for burial. The canoe used for this then cannot be touched for four days, four being in general the magic number on Ifaluk.

The alus, the spirits of the dead, are sometimes benevolent and sometimes malevolent, apparently depending on the character of the person from whom they came. The malevolent spirits cause all sorts of trouble, including most kinds of illness. Mel Spiro, in his psychological studies of the Ifalukians, found fear of alus to be dominating both consciously and subconsciously. We had no encounters with alus, but we didn't seek any, and the attitude toward alus of the young men who worked with us seemed to be largely ritual, but we did not try to probe into their psychology.

In theory the dances, then, were designed to please the alus, both the high gods and the ordinary spirits. The elaborate ur dances which required these endless nightly rehearsals, were surely for the high gods; but all of the alus, like all of the people, must have enjoyed them. The rehearsals finally ended in the big show, which was held on July 22nd, at midday in the schoolhouse clearing.

Don and I were off taking advantage of a low tide to work on profiles of the reef when a messenger came to tell us the dance was about to start. When we got there the men had already formed into a line along the north margin of the clearing. They were all dressed up, with bows of the ivory-like unfolded coconut leaves on arms and legs, with coconut-leaf skirts over loin-cloths, with necklaces of flowers and of the greenish-ivory coconut leaves, with garlands of flowers, and surmounting all, a block of pith over the forehead, wrapped in red paper and tinfoil (from cigarette packages) and bearing a cluster of tall white feathers (perhaps from the fairy terns; but more probably and prosaically from chickens). Faces were marked with red turmeric, a streak of red along the jawline, and dabs on the cheeks and arms.

They put on a fine show. Some of the pieces were songs or chants, with an accompaniment of stamping and clapping. Others involved more complicated gesturings and posturings. In one, two men standing with outstretched arms pantomimed man-of-war birds—tilting, soaring and gliding—while the rest knelt facing each other, chanting the

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796 [126] story. This went on for nearly an hour, with the three of us too busy with cameras and recording machine to really appreciate what was going on. Then there was an intermission. Arueligar, the high priest, distributed the two cases of corned beef and the two cartons of cigarettes we had donated for the occasion. Dancers and onlookers refreshed themselves by drinking coconuts. Then the dance was resumed, this time by the women, who formed their line along the west margin of the clearing. Their dress was similar to that of the men, except that of course they wore lava-lavas, not loin-cloths, under their coconut-leaf skirts.

796 178 533 Ted was interested to discover that two of the dances performed by the women were new—a concrete demonstration that the traditional form of the ur dance does not necessarily impose traditional subjects. One of the new dances, turning on a poem composed by Letaweriur, Yani's wife, concerned the first coming of the Americans to the island. It was a very long chant, recounting in detail the appearance of the first ship, the delivery of an official document, the nature of America and the Americans, and the like. Ted's translation of the opening stanza is:

Now all our women rejoice;
Now the Americans have come.
This is pleasing to the chiefs.
[539] *They have given us a paper.*
This place is to rise;
This island is to be lifted up.
The chiefs say we are to dance.
We will dance, we will rejoice!
This very month, for this is a good year! Eil
The Japanese are gone.
We did not like their rough ways.
The gods have been good to us;
Now our crops are safe.
The Americans talk kindly. . . .

527 123 262 When the women's dance was over, the people scattered into small groups—made up by family, by household, or by friendship—for the feast. Perhaps "feast" is too strong a word, since there was nothing

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unusual about the food except our corned beef. But always, after a communal activity of any kind, there was a communal meal. I drifted from group to group taking pictures and eating a snack of breadfruit with this friend, a hunk of taro with that, and letting them play the always-amusing game of peering at one another through the sights of my Graphic camera.

The day was shot as far as "work" for us was concerned. By the time we had got film and notes taken care of, we were ready for our afternoon swim in the lagoon in front of the Fan Nap.

From the beginning, we had formed a habit of going for a swim in the lagoon toward the end of the afternoon. Many people on Ifaluk bathed in the lagoon in late afternoon, so we were right in line with local custom. As an old Floridian, I really preferred swimming in the bright sun of mid-day and I tried to make our lagoon schedule as early in the afternoon as I could; but what with one thing or another, we often didn't get into the water until rather late.

We always wore goggles. I wonder now why anyone ever goes swimming without goggles. Man, under water, is blind without them. In many places, to be sure, there is little to see; but one can never be sure of this without trying. And in the lagoon at Ifaluk there were unending marvels to be looked at.

We were caught at first by the sheer pleasure of drifting around, exclaiming at the forms of the corals and of the colors of the fish. Then we got to thinking that if we were to spend an hour or so in the water every afternoon, we might as well be trying to make some systematic observations.

The fish, we noticed, paid very little attention to us. Apparently a large brown object of human shape plopped into their environment had no connotation of danger. The fish went on about their business as usual, indifferent to the observer. The contrast with the land, where birds and mammals clearly regard observing man as a potential enemy, was great. We didn't have to resort to field glasses or blinds—we could just float pleasantly on the surface and watch the fish. In coral seas, at least, fish watching seems to me to have it all over bird watching, though I doubt whether I would be so enthusiastic about fish watching in colder waters.

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000 [126] We had aqualung equipment, but this was for Bob Rofen to use in his fish collecting in the fall. We didn't touch it because the supply of compressed air was very limited, and anyway we were unfamiliar with the equipment. We felt no need for deep diving, though. There was plenty to observe close to the surface, and we had "schnorkel" breathing tubes, which were useful if you wanted to keep your eye on the fish.

133 If we were going to be scientific and systematic about our daily swim, the first thing to do, we decided, would be to make a map of the swimming area, so we could tell where we were. The coral in the lagoon grew in large, irregular clumps which I called "coral heads" though they are more properly called "reef knolls" or "patch reefs." These were separated by open areas in which the bottom was clean, white sand.

The coral heads near the shore grew to a height where they were just awash at low tides. The tops of these were flat, and the coral was dead except around the margins. In deeper water, the "heads" were rounded and they occurred scattered everywhere over the lagoon floor as far out as we could see, peering into the crystal water.

The coral formations in shoal water showed up plainly on our aerial photographs as irregular dark patches, and from these I tried sketching the formations directly in front of the Fan Nap, where our fish watching activities were concentrated. We subsequently checked and modified the map on the spot with the row boat, and in the end got a pretty accurate picture of this bit of the lagoon.

Landscape (or seascape) features, to be remembered, need names, so we decided we should name the reef formations in the swimming area. First to be commemorated were our wives. Two prominent and complicated contiguous masses of coral, fairly near shore, were named Izzie (for Isabela) and Nancy by Abbott and Bates respectively. Various tributary fragments broken off from these masses were given names after Abbott and Bates children. Ted selected a pleasant, rather isolated and well-rounded head to name after Marie, with Nani, his daughter, somewhat farther out in the same line, and his son David off to the right.

A central group of reefs was named after the five chiefs of Ifaluk. A large and rather sterile mass near shore presented a problem in

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naming which Ted neatly solved by suggesting Beldame Flats, for the slightly wacky old lady who persisted in making eyes at him during evening dance rehearsals. 133

Out beyond and to the north of these discrete coral heads lay a great submerged mass of dead coral, which we decided to call the continent of Moo. Moo had a complex topography, with southern and northern outposts and an octopus point, only intermittently inhabited by octopuses during the summer. A great deal of my time was spent floating over the southern outpost of Moo where a big red squirrel fish (*Holocentrus spinifer* to ichthyologists) seemed to get as much pleasure out of watching me as I got out of watching him. [136]

Each coral formation was staked out into a series of territories by little Pomocentrid fish, called "lejoc" by the Ifalukians. The lejoc were only about three inches long, but their belligerence in defending their territories was in no way proportional to their size. We spent a lot of time teasing them. A foot, a hand, any new and foreign object intruded into the territory always caused great indignation—was always the object of fierce attack. 133 136

Each fish defended a roughly circular territory two or three feet in diameter, with boundaries marked by features of the coral landscape, and with a centrally located crevice or hole where the lejoc would lurk when not warding off intruders.

Biologists define a "territory" as an area defended by an individual, a pair, or a group, against intrusion by others of the same species. Many kinds of mammals, birds, reptiles and fish show territorial behavior, though until recently the matter had been little studied in fish, and there is still a great deal to be learned. The lejoc were clearly territorial in the strict sense, individuals clinging to the same area day after day and defending it against intrusion. My big red *Holocentrus* may also have been showing territorial behavior, since he (or she?) stayed in the same small area off Moo all summer. But I never noticed the *Holocentrus* showing aggressive behavior. Perhaps the outpost of Moo was a "home range" rather than a "territory" for this individual: the difference would depend on behavior in relation to another *Holocentrus* swimming into the area, a situation that I never had a chance to observe.

The water was full of marvels. Don had a category of what he 000

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The water was full of marvels. Don had a category of what he
136 called "unlikely animals"—animals he never would have thought of if
126 he had been in charge of animal design. Any one of the three of us, cruising around with our goggles, would be likely to shout to the others to come see some new marvel he had just discovered for the first time.

136 I remember the afternoon Ted called out "come look at this—here is a helicopter fish!"

Sure enough there was a sort of squat fish hovering in mid-water near Marie (Ted was apt to do his fish watching near the coral head named after his wife) with fins split into long narrow rays which, in their movement, had reminded Ted of a helicopter. The fish seemed completely indifferent to our watching; presently it went into forward gear and moved slowly and sedately off.

We looked through the fish books and presently made out that it was *Pterois*, a "scorpion fish" or "lion fish." We learned that the protruding spines were poisonous, which probably accounted for its calm indifference. We subsequently saw these fish several times in our swimming area, but they were not among the regular, territorial inhabitants.

The synaptid sea-cucumber was another unlikely animal. Most sea-cucumbers have a reasonably cucumber-like form (though one kind on Ifaluk achieved an almost watermelon-like size). The synaptids, however, are long, slender, snake-like affairs. The species in our swimming area had a bright, almost black-and-white checkered pattern that reminded me of some of the South American vipers like the fer-de-lance. Stretched out from under a coral head, the sea-cucumber looked for all of the world like a fer-de-lance crawling out from under a rock. Only, when you looked closely, you saw not the menacing, triangular head of the viper, but instead, where the head should be, a rather silly-looking tuft of waving plumes. And when you picked this unlikely animal up, you found, not firm flesh, but a limp, tissue-paper-like affair. I always thought of them as the tissue paper fer-de-lances of the coral heads.

Don thought that the giant clams should be included among the unlikely animals, but he was looking at them as a zoologist, thinking of their unlikely physiology and structure. The giant clams (*Tridacna*)

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of the Ifaluk lagoon were not really giant, perhaps because people found them and ate them before they had time to reach an unlikely size. To a non-zoologist, they didn't look unusual, except for the lovely colors of the margins of the partly-opened shell and of the flesh of the animal disclosed within.

Don gave me the following explanation of the unlikely physiology of the clams (in terms of the studies of C. M. Yonge on the Tridacna of the Great Barrier Reef of Australia):

"The animal has thousands of microscopic plants, single-celled algae, in its blood. The part of the body of the clam, exposed to the sun when the shell is open, bears hundreds of tiny lenses that focus the light into pools of blood below the skin, turning the superficial tissues into a sort of greenhouse. The algae in the blood are transposed from here and digested in the blood stream in the vicinity of the gut and "liver," providing a part of the clam's diet. The rest of the Tridacna's food is assorted small plankton, filtered from the water by the gills and taken in through the mouth. Algal food digested in the blood leaves fecal wastes there—in effect the beast is defecating in its blood stream. How to get rid of the fecal wastes in this unlikely place?

"The animal, like other clams, has a pair of kidneys; in other clams these excrete nitrogenous wastes from protein breakdown. But in Tridacna these nitrogenous wastes are picked up quickly by the algae and used as a fertilizer. Tridacna's urine is almost pure sea water. But the animal has found a 'new' use for its kidneys—each acts as a sort of accessory anus to eliminate the fecal wastes left in the blood by algae digestion there. The 'farming' operation has involved complex physiological changes affecting the whole organism."

We think of molluscs as slow, deliberate animals, but these *Tridacnas* can close their shells with extraordinary speed and decision. One of our amusements was to poke things at the clams to watch the suddenness with which they could snap shut. It is quite believable that the big ones could catch a diver's foot and hold him until he drowned —a standard hazard now in Pacific movies.

Don dedicated quite a lot of time to octopus watching. Octopus Point, along the west coast of the continent of Moo, got its name from a small octopus that made headquarters there the first few weeks of

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136 the summer. Just about the time that we had decided that this octopus had a permanent home there, it disappeared and our daily checks would reveal only the empty hole. Then Don found another small octopus living in a hole in the center of the coral we named after Maroligar.

The octopuses were suspicious creatures, and while they would often be partially outside when first found, they would slowly withdraw into the recesses of their holes under the steady gaze of the observer. There was always a pile of small coral fragments outside the hole, and as an octopus retreated, these fragments were pulled in by the sucker-covered arms to block the entrance—except that generally a small peep-hole was left, framing a watchful octopus eye.

The area around the hole on Maroligar reef was littered with debris from the meals of the octopus: empty shells, claws and legs from the crabs it had eaten. Don picked up all of these and saved them—a food record on the octopus. Every day he would find the remains of more crabs, so that he got a record of the diet of this crab-loving octopus over a period of several weeks.

Then, one day, the hole on Maroligar was empty, and it remained empty for quite a while. Thus we got the impression that these octopuses would make headquarters in one place for days, or weeks, but that they did not stay permanently in any one place, did not establish "territories" the way so many of the other lagoon inhabitants did.

I only once saw an octopus swimming in the daytime. I wouldn't have seen this if it hadn't moved—a piece of a brown coral mass I was looking at suddenly gave a few convulsive movements and then shot off, jet fashion, with trailing tentacles, to the next coral head where it stopped, again blending perfectly into the background. I swam slowly toward the place where it had disappeared, but just as I got near enough so that I could distinguish octopus from coral, it took off again, this time disappearing into the depths of the lagoon.

133 126 I have been writing glibly about "coral" and "coral heads." Actually, these patch reefs were built up of a wide variety of lime-secreting organisms, many of them not true corals. We picked one of the patch reefs, Maroligar, and tried to make a map of the different kinds of organisms that were contributing to its structure. We thought this

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would be simple and easy, since Maroligar was a small patch reef about six yards long and a couple of yards wide. It turned out, however, to be a complicated operation, which kept Don and me busy for many hours.

Much of the trouble was technical—mostly the problem of working in the water with dry materials. When we had got an outline map made, we decided to spot the different kinds of coral and coral-like organisms on our map with colored pencils. But the colors, when wet, would blur! We had a canvas-covered inner-tube that served as a raft. We would tow mapping gear and towels on this, out to position. Then I would stand up, on some convenient part of Maroligar, dry my hands, and start trying to mark down the corals as Don, diving around with goggles, called them to me. He would come periodically to peer at my map, point with dripping finger to where I had the thing wrong, and with this well-placed drip of water that bit of my map would really be spoiled. Or I would try to move, and slip, splashing water over everything. At times we got completely fed up with the project, but we kept on and finally got a reasonable map that, with all of the different colors, was almost as pretty as Maroligar itself.